

FEBRUARY, 1938

AMAZING STORIES

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GRETA, QUEEN OF THE QUEENS

by

W. K. SONNEMANN

JOHN RUSSELL FEARN

AMAZING STORIES

Science Fiction

Vol. 12

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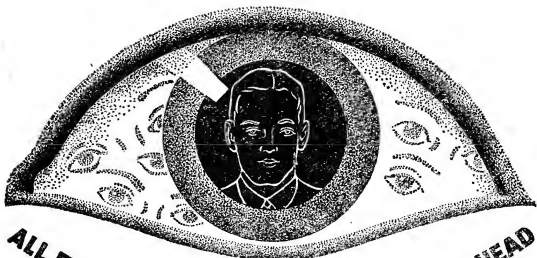
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Extravagant Fiction To-day Cold Fact To-morrow

Typography

By T. O'CONOR SLOANE, Ph. D.

THERE is no more impressive date, in the history of mankind's temporal progress, than that of the invention of printing from metallic types. It marked a true revolution in the intellectual world. It placed books in the hands of all, rich or poor. Before that time books written by hand were the property of the rich, their production was so costly and so slow.

In China wooden blocks were used to a very limited extent for the printing of books. But the Chinese have no simple alphabet such as the Caucasian races possess. A great number of type would be needed for Chinese printing. Before an attempt was made to use such type the Chinese engraved texts on wooden blocks and printed from them. This is called block-printing, and may etymologically be called stereotyping, which of course it is not in the universal use

of that word. Chinese block-printing dates back nearly eleven hundred years. Toward the middle of the eleventh century movable type were used by a Chinese. His book was lost for eight or nine centuries.

Not only the date of the invention of printing from metallic type, but the inventor or inventors are unknown. It is generally attributed to a German, John Gutenberg, a citizen of Mayence. There is to be seen a statue of the inventor, clad in flowing robes with a long beard gracing his meditative face. The artist was Thorwaldsen. Recent investigations are taken as indicating that he was beardless. The Gutenberg Bible, a beautiful piece of work, is his monument. It resembles a manuscript, the type were made in imitation of manuscript perhaps, but they are difficult deciphering for a modern reader. It is also called the "42 line Bible" and the

"Mazarin Bible." A copy was found in the library of the great Cardinal, and most of its pages had forty-two lines. Less than fifty copies are known to bibliographers. It is fair to believe that the type of the Gutenberg were of metal. It is probable that he had only enough type for a single page. His press quite probably could not have been large enough for more than taking one page at a time. But this is only conjecture.

If we had no alphabets, books might have been printed in syllables, but it would have taken an endless number of characters to do this. It is the comparatively few alphabets of the Caucasian world that have made printing from type a possibility. It is hard to believe that for some three thousand years, long manuscripts have been laboriously written out. In this lies the preservation of the classics, the great Homeric epics going back nobody knows how far in time; perishable wood-pulp paper was unknown in antiquity, if it had been we should probably have lost the little that has come down to us. Papyrus and parchment were the materials used to write on and they are very durable.

It is an interesting question how the type of the Gutenberg Bible were made. If the great work was printed only one or two pages at a time, a small number of type would be enough. This opens the possibility that they were carved out of metal blocks. The size of the letters lends probability to this surmise.

Man had long known that lead was fusible at a comparatively low temperature. He found that by the addition of antimony its temperature of fusion could be greatly decreased. The addition of tin hardened it. This alloy acts like ice or molten iron, it

expands on solidifying. This quality is essential for obtaining a casting that will fill the mould. Now if we make a mould the exact shape of a type, fill it with melted alloy of the three metals named, they will solidify, and as they have the property of expanding on solidifying, they will produce a perfect casting of the mould. The casting is made easier because the alloy melts at a low temperature. It cools quickly with the expansion just described. The alloy is called type metal. It is used in enormous quantity. A printer setting type has to have over a thousand pounds of type at his disposal. An early problem in the art referred to the designing of a nicely formed set of letters, what we term the alphabet. The first two words of the Greek alphabet are —alpha, beta—and these have given us the word "alphabet." And it is the few letters of the alphabet that can give us the multitude of words in so many languages, and even tell us, or try to tell us, how they are pronounced, even if we cannot do it for foreign languages.

The making of type by hand is by no means a lost art. It is a slow process, although the operative may move his arms quickly enough in the casting. The first thing is to make what is called the counterpunch. On the end of a bar of steel there is cut away most of the metal which represents the white portion of the letter. The counterpunch is of hard steel or is hardened after the cutting. For this it may be softened and hardened afterwards. On the end of a similar bar of steel the counterpunch is driven so as to impress upon it the reverse of the face of the counterpunch. This gives an unfinished or partial impression of the face of the counterpunch upon the

face of the punch. Now the engraver finishes the letter and the punch is hardened. If there were enough punches at hand and if they were not too thick they would represent type.

The punch is used to impress upon a plate of copper the impression of the letter which has been formed on its surface. The surface of the punch which gives the reverse of the face of the letter in the copper must be perfectly finished to start with. The piece of copper impressed as described is called the matrix. It forms the bottom of a mould the exact form of the body of a type. The mould is contained in a sort of steel and wooden case. The type founder pours the melted metal into the mould, giving the mould a kind of jerk to force the melted metal well into the mould. He gives a sort of jerking motion, which is quite characteristic. When the type drops out there is a stem of metal protruding from the base. This piece, called the "break" is broken off; a groove is cut across the base, which gives the type two feet to stand on, and one or more nicks are cut across the face of the stem. These are to tell by the feel if the type is facing rightly.

A man can produce about three thousand to four thousand type in a day. The making of type by hand is now practically supplanted by machinery processes. It would spoil a day to try to produce type enough for one page of this magazine.

The setting of type by hand is not done so extensively as formerly. Machine setting of type or of matrices has replaced it. To set type by hand the compositor, as he is termed, takes the appliance called the "compositor's stick" in his left hand. The stick derives its name undoubtedly because it is used to stick type. It is not a bit

like a stick of wood. It is shown in the cut in the left hand of the compositor. He stands in front of a great inclined table-like case, divided into sections for the letters of the alphabet, punctuation marks and all necessary spaces, called quadrats, and other characters, which are likely to be needed. The operative picks up the required type or sign, and puts it in the stick, in which the type or other character is taken care of by the left hand. There is a movable gauge or sliding piece, to be seen in the cut, and this is set to the width of the line. The nicks on the type come into use here, as the compositor can tell by feeling them if he is getting the type right side up.

When the stick is full its contents are lifted out and transferred to a sort of narrow tray, called a galley. A proof impression on paper is generally taken at this time, giving a "galley proof" for corrections. Plenty of margin is provided on the galley proof to receive such corrections. To make up the pages strong iron frames are provided and the galley proofs are divided into page lengths and are transferred to what is known as the imposing stone, usually a plate of cast iron planed to an accurately true and flat surface. Undoubtedly at some past era imposing stones were real slabs of marble or other rock, and there may be many of them in use now. There is a story that some printer in need of an imposing stone robbed a graveyard, thinking presumably that the tombstone which he removed therefrom would be as useful to him as to the occupant of the cemetery. We must hope that he found a flat surfaced stone. The movable bottom of the galley is slid from under the mass of type, which is broken up into pages, and is wedged

in position within a cast iron frame or chase as it is called. It is wedged in place after having strips of wood placed around its sides, the thicker ones called reglets and the thinner ones furniture. The combination of chase and type is called the "form." The type is liable to be uneven, so it is planed down to a level. This is done with a block of wood and a mallet. The wedging must not be too tight when this operation is to be carried out. The wooden block is placed on the surface of the type and is struck with the hammer with some moderation. If the wedging is too tight as the type is planed down in one place it may rise up in another. Like everything else in printing it is easy to go wrong in "planing," as the operation is called. It is now ready to be transferred to the press.

Here there are two operations to be performed. If the printing was gone on with, some of the type would give a darker or lighter impression on the paper in spots. This is provided for by the overlay and if necessary by the underlay. The overlay is a sheet of heavy paper which has had drawn upon it the location of the bad spots, where the impression is too light. Over these pieces of paper are pasted, which thicken the overlay at such points and a new trial is carried out to see how near right it is. For very sensitive work an underlay the exact reverse of the overlay may be used, to go underneath the type.

It would require a book to describe the printers' art. The compositor stands in front of a great case, containing a thousand or more pounds of type, punctuation marks, spaces and figures, and from these he makes up the body of type for a few pages at a time. The desk-like case before him is divided by partitions, each

division for a single letter, the letter "e" requiring the largest division and the letter s, x and z the smallest. Readers of Edgar A. Poe's story of the gold bug will remember how the secret writing was deciphered partly by working on the relative frequency of the letters in English. The letters are given as near as may be, smaller or larger divisions of the case, proportional to their frequency of occurrence in our language.

A setting of a page of type is heavy; if of more than one page it will be very heavy. It has its weight added to by the heavy cast iron frame termed a chase within which it is firmly wedged. It is told of Benjamin Franklin that when he was working as a printer in England, the English printers laughed at him because he would not drink beer. They seemed to think that this was necessary to make them strong. His answer was to carry two of the filled chases up the stairs, while they only carried the one, an *argumentum ad hominem* as the logicians might say.

It is remarkable at how early a period type faces were designed. The italics go back to the sixteenth century, only a few years after Gutenberg's time. They are said to have been based on the handwriting of Petrarch, the Italian poet. A type used very extensively at the present day is Caslon, designed over two hundred years ago by William Caslon. Of course it is somewhat modified to suit present-day ideas. The early remains of Caslon's work are preserved in the Printing Museum in Worcester, Mass.

There is quite a characteristic and even extensive vocabulary in the printers' world. A box used for the reception of broken type is called a

"hell box." The printing office boy who runs errands and is supposed to make himself generally useful, but probably fails in the effort, is called the "printers' devil." Perhaps he is that sometimes. In old times he was called the "imp." The "em" is the measure for lines of printing. It is the width of the body of the type of the letter m. This type is perfectly square in the cross section of its body, so any of its sides give the unit

of measurement for the various types. The "en" is one half the "em." The celebrated printer, Caxton, set up his press in Westminster Abbey, and that must have given the word "chapel" to the printers' vocabulary, to indicate a meeting of the printers of an office. Caxton's press was in the *scriptorium*. Carrying out the idea the English printers call black and white spots on their work "monks" and "friars."



Compositor's Stick

Science Questionnaire

- | | |
|---|---------------|
| What can be said about the date of the invention of printing? | (See page 9) |
| What did the Chinese do in the development of the art? | (See page 9) |
| What book is the monument of its printer? | (See page 9) |
| What names are applied to it? | (See page 9) |
| How many pages of this bible were probably put on the press at one time? | (See page 10) |
| Did the alphabet help in the invention of printing? | (See page 10) |
| How did parchment and papyrus help in the preservation of literature? | (See page 10) |
| What is the composition and distinctive qualities of type metal? | (See page 10) |
| What are the functions of the counterpunch, punch and matrix in the making of type? | (See page 10) |
| How much time would be required to make by hand the type for one page of this magazine? | (See page 11) |
| Describe the compositor's stick and its use? | (See page 11) |
| How is a page of type planed? | (See page 12) |
| What are an overlay and an underlay? | (See page 12) |
| How long ago was Caslon type designed? | (See page 12) |
| How is a sound wave reflected? | (See page 72) |
| What is the distinction between stress and strain? | (See page 77) |
| What is the distance traversed by molecules between collisions called? | (See page 77) |
| What may the mineral magnetite be called? | (See page 88) |
| What does the amplitude of vibration of particles of a medium mean? | (See page 93) |
| What is the energy per unit volume of the sound wave proportional to? | (See page 93) |
| What effect do concave reflectors have on sound? | (See page 94) |
| How do bees act upon plant propagation? | (See page 20) |
| How many bees would weigh one pound? | (See page 46) |
| What is the weight of 300,000 bees? | (See page 46) |

Greta, Queen of Queens

By W. K. SONNEMANN

We have had in the past, many insect stories telling about the ways of ants and bees, but this story by the well-known author, W. K. Sonnemann, is of unusual merit and the Editor feels that the development of sentiment in it gives it a very interesting cast of its own. We could say a great deal more about it, it has made such an impression on us, but we will stop here.

We know our readers will enjoy it.

CHAPTER I

GRETA, THE VIRGIN

THE subdued hum of activity was faintly audible through the walls of Greta's prison. She stirred, restlessly. The pulse of life was throbbing in her veins, and every instant she was becoming more and more aware that she was a living being. She wondered at the source of the hum for a moment, then awoke to a quick realization of the true state of affairs. She was a queen bee just entering upon the threshold of life. A week ago she had been a pearly white larva busily spinning a cocoon. An hour ago she had been a still, inert form. Now the power of life activated her body and gave strength to her being. And now, too, instinct was picturing her whole life-plan before her. She tore into action. With powerful mandibles, she attacked the capping of her cell.

There was danger for Greta beyond the confines of her narrow prison and she knew it. Instinct pictured before her the peanut shaped cell of beeswax that would hold her doom. It would bear within it another queen similar to herself. If the other queen matured and emerged from her cell first, and

she might be emerging this instant, she would do just exactly what Greta intended to do. Greta intended to seek out immediately all other queen cells within the colony and destroy them. She would begin by tearing them open from the side with her powerful mandibles. Then, when the opening was formed, one thrust of her venomous stinger would serve to completely destroy the life of the helpless queen within. It was merely a matter of time. If Greta emerged first, she would kill her rivals and become the mother of the colony in accordance with the age old instinct that dictated that there be only one queen. If she did not emerge first, she would be killed. The thought of it sent a shiver through her long, tapering body. In her haste and anxiety she could almost feel the deadly stinger of a hated rival piercing her body now. She redoubled her efforts.

A moment later the work was done. A bit of beeswax, lined with a portion of the cocoon she had spun as a larva, fell away and exposed a circular opening. Greta rushed outside in feverish haste. Now no rival queen could sting her helpless form, bound up in close quarters where she could not fight.



"Bees!" exclaimed Anderson. Something in his tone indicated to Stevens a mixture of incredulity and satire.

The thought of it stilled the fever of her excitement, and Greta experienced a sudden change in outlook. She had no terror. Terror of what? She had emerged from her cell alive, and now a feeling of confidence possessed her. She had a stinger to fight with, and her body was long, slim, and powerful. True, her wings were still damp and she spread them to dry, but there was strength in her legs with which to grasp her enemy queen and hold her while she thrust her terrible weapon to the vital spot. Let her rivals gnaw away at their cells, if they had reached that stage, while she dried her beautiful wings. She could dispose of them in mortal combat later, and she was afraid of nothing.

Nearby there was a cell of uncapped honey. A terrible longing for food seized Greta, for she had not eaten since she was a larva, and she tasted it eagerly. It was excellent. And why shouldn't she sample it? In days to come she would be fed predigested food by the worker bees, so why shouldn't she appease her hunger now with the natural sweet? She did. It gave her strength.

It was queer how hungry she had been. Now she was satisfied. Her wings had dried, and she felt that the strength of her young body had been doubled. She felt completely ready for life and action, and instinct again told her wherein action would be immediately possible.

Those other queen cells, if any, offered her the chance to display her mastery. After all, it would be much easier to dispose of her rivals as they lay helpless within their cells. There would be no risk there. Why should she wait until one or more emerged? She might lose in the mortal combat, powerful though she felt she was, and

she wished to head this colony. It was hers by right of first emergence. She set her legs in motion, intent upon scurrying up and down the combs until she had disposed of every last one of them.

Greta was not prepared for her instant rebuff. For the first time, she became conscious of the circle of determined worker bees about her. They faced her, filling all space between the combs, and presenting a united front. She tried again, but she could not get through. Instinct had not told her anything about this, and she was momentarily at a loss. Then her confidence returned and she asserted herself.

"Out of my way, workers," she radiated, involuntarily. "I have work to do. Out of my way!"

"Not so fast, Greta."

Greta did not hear the reply. She felt it in her living being. Sixth sense, that marvelous sense of silent communication unknown to humanity, had conveyed the answer of the workers to her consciousness just as positively as she had involuntarily radiated her command. She was taken back for an instant, but instinct was dictating what she should do.

"Out of my way!" she commanded, even as she charged the wall again.

Her third repulse was no less positive than the repeated warning which she felt again.

"Not so fast, Greta."

Greta's powerful legs wavered a bit under her as she failed to comprehend this unexpected opposition.

"Workers, I do not understand," she radiated. "Instinct tells me that I should move out across the combs and destroy my rivals, and that you should wait upon me. Instead, you detain me. Why do you do that?"

"Instinct does not rule in this col-

ony, Greta," came the reply. "Instinct is a helpful aid that we employ, but it does not rule. The ruling force is the intelligence of humanity. You have that intelligence, and we have it. Use it as we do, and make instinct merely a tool."

"What do you mean?" asked Greta. "You shall soon learn in full."

"But what about the other virgin queens? I must kill them at once. Are there not others even now looking for me to kill me and settle the mastery of the colony?"

GRETA did not immediately understand the reaction to this question. It was only when, in her perplexity, she had subdued the calling of instinct somewhat that she appreciated the sensation. The worker bees were amused, and she, too, had a sense of humor.

"Greta, you are just like all virgins. They are all so tremendously proud of themselves, when they find that they have escaped from their cells alive. They all listen to instinct first. They think that soon they shall be the undisputed reigning queen of the colony. Listen, Greta. You are the last to emerge of a total of three young queens—Masouls, we call them—that we have just reared. The other two have been out for hours. Our city is not all yours by right of first emergence as you thought."

Again Greta's legs wavered a bit.

"Why did they not kill me?" she asked. "When will you allow me to fight them?"

"You shall not fight them at all. We have already made them listen to reason. You are safe. There are at this time twenty Masouls in this colony. Seventeen of them have mated long ago and contribute their share of eggs to maintain what we think is

the most powerful colony of bees in existence. We are all one happy family. You are privileged to join us, and to live in peace."

"I do not understand," Greta said. A spirit of meekness dominated her reply for the first time.

"Do you accept the conditions as we have outlined them?"

"It seems that I must. You workers seem to have the situation well in hand. I only wish to know more."

"You shall. We shall take you before Thuros. She is the oldest living Masoul in our city, and the wisest. She is Queen of Queens. Her word is law. She will explain."

The circle of worker bees loosened, and many went about their way. One stepped forward.

"Follow me," she said, and Greta obeyed.

CHAPTER II

THUROS, THE MIGHTY

THAT Thuros was extremely old was evident even to Greta's inexperienced senses. And yet she impressed Greta at once with a possession of great power. That power was not physical, for Thuros the Mighty was obviously growing weak. It was something that Greta felt in her presence, quiet dignity and depth of thought. As Thuros studied Greta a few moments in silence, Greta seemed to know without being told that Thuros had ruled her colony wisely and well for many generations, and with an iron hand.

"I think you will do," said Thuros. "You possess the required physical qualities to a greater degree than do your two sisters. If your intelligence is in proportion, we shall give you the chance."

"What chance, Thuros? And what are my special qualifications? I have met with such a rebuff that I feel inadequate."

"Stifle that feeling of inadequacy at once, Greta. I understand it, of course, because I experienced the same thing when I emerged. It is merely a matter of adjustment to overcome it. Now listen carefully."

"You were reared, Greta, in the hope that you would be able to cope with an emergency. It is very serious. We are faced with ultimate starvation. In a year or less this colony will die from lack of food. It will be your colony that dies if you do not prevent it, for, unless you disappoint me, you shall be my successor."

Greta gained confidence in herself as Thuros spoke.

"I shall do my best to save the life of this city," she said. "But why are we faced with starvation?"

"Mankind is at war," replied Thuros, and she seemed to sneer as she said it. "Men, from whom we derived our intelligence, are annihilating themselves. For years there have been areas where our flowers bloomed profusely and supplied us plentifully with the life-giving nectar. Now great holes open up instantly in those areas and the flowers are instantly destroyed. Those workers of ours who are busy on the flowers when this occurs never return. Men that are near crumple up and die. Our flower areas have been turned into waste land, and the beautiful trees in the woods that bloom in the summer are still being blown out by the roots. Once this proud city of Cavoon had stores sufficient for four years. Now our stores are inadequate for even one year. This condition is brought about entirely because of the war between men. I

do not know what you can do to solve this problem. I am too old to tackle it myself. I can only tell you the facts."

Greta did not reply immediately. She found it hard to understand the destructiveness of man and to accept, at the same time, the fact that her intelligence was derived from man. She did not feel destructive. Rather, she felt the urge to accomplish worth while things. If she could solve the problem that was presented to her, she would be accomplishing a great deal of good instead of being destructive. At length she said:

"How did we derive our intelligence from man?"

Thuros replied with spirit.

"We did not derive our intelligence from *these* men. Two hundred years ago there was a man known among his human friends as Fred Stevens. His intelligence was transferred to the body of a queen bee as a result of some sort of experiment that he never fully explained to our ancestors. He lived in the colony until his body was crushed by human hands. We of Cavoon trace our ancestry direct to him. His two great contributions to our lives have been the hereditary ability to reason, which has been transmitted to us, and is the one supremely important thing he taught us. He taught our ancestors how to mount two sharp grains of sand so that our worker bees can thrust their strings between them and have the barbs shaved off. When this has been done, the worker bee can use her sting without being subject to death because of its loss. The gift of intelligence has been supremely important from the standpoint of adapting ourselves to conditions, or adapting conditions to ourselves. The gift of the

sand-grains has made us fearful of no one, and we have many times protected ourselves most capably against our enemies."

"I have followed you closely, Thuros," said Greta.

"Very well. For two days you are to satisfy your every hunger without stint and gain strength. Then you are to fly from the city with Masoul Fourteenth. She will complete your education, and she is wise. She will also lead you to the scene of war so that you may gain first hand information concerning your problem. You may go."

Greta hesitated.

"You did not explain my special physical qualities that met with your approval," she said.

"Didn't I? Then I shall. Greta, your wings are longer than mine, and your body gives promise of being larger and more powerful than mine ever was. Your mother and your grandmothers between you and me have been especially selected for this qualification. It is a matter of improvement of the species through careful selection. Those queens, that are reared that do not better their mothers in physical qualifications, lay eggs only for the maintenance of the colony population. Virgin queens are reared only from eggs from those queens who have bettered their mothers. You are no disappointment from a physical standpoint. It remains to be seen what you have in your head. Let us hope that it will justify my plans for you to become my successor."

A quiet feeling of confidence grew upon Greta in the two days Thuros had allowed. She felt that she would not disappoint the Queen of Queens, and yet she knew that her task was great.

CHAPTER III

MASOUL FOURTEENTH, INSTRUCTOR

IT was the first time that Greta had visited the entrance to the city. The small opening in the side of the hill that led to their city in the cave was perched high above the floor of the ravine below. Just below her, the top of a tall tree swayed and undulated slightly in the breeze that swept up the ravine, and above her a single yucca plant erected its raceme of pendulous ivory blooms from a precarious foothold in the rock. Directly across from her, scarcely twenty feet away, the opposite wall of the ravine rose precipitously.

As Greta massaged her antennae with her forelegs, she observed the constant procession of workers in and out of the entrance. They left like a shot, business-like, and full of ambition. They returned more slowly, exhibiting weariness and a sense of futility.

Greta and Masoul Fourteenth took wing at the same instant and circled slowly higher. Then they headed down the ravine and toward the open fields at its mouth.

"Thuros told me that we owe our intelligence to a man, known among men as Fred Stevens," said Greta. "She told me that his gifts to us were the hereditary ability to reason and the sand-grains. I should like to know more."

"There is not much more to be learned about it," replied Masoul Fourteenth. "We do not know exactly how his intelligence came to inhabit the body of a queen, but we do know how he left. He was killed by a man. While he, or she, was with us, he developed a great hate for humanity, because of man's meddling with our colony life and robbing of our stores.

Man's smoke distressed him terribly, and history indicated that this was probably the most powerful factor in turning him against his former friends. The idea of the sand grains came to him as a means of equipping the colony to make war on man. He waged a relentless war on man and lost. He was killed first, then the colony was killed."

"Then how do we happen to be here?" asked Greta.

"Stevens' hatred for man was so great that he intended the war to be carried on for years until man was ultimately conquered. He gave directions as he lay dying, for that colony to set up a new home in the woods, carrying to it eggs that he had laid, and to rear in that new home a new Masoul to carry on. The colony managed to succeed in doing that with a portion of its population before it was wiped out. We trace our ancestry to that portion of the original colony that succeeded in carrying out his instructions. The continued life, which our ancestors secured by faithfully carrying out his instructions, forms the traditional basis for our loyalty to the established law of the city."

"Then there are other such colonies as ours?"

"There are many others. The original location was cramped for room, and the colony there cast many swarms. The swarm that established Cavoon 100 years ago traced three different homes between it and the original hollow tree. But Cavoon has never cast a swarm. It has been too well pleased with its location and has too much pride for any one of us to want to leave."

"It seems that man is still here and making things very miserable for us with his war," Greta said. "I thought

our ancestors were supposed to conquer him."

"Our own fight with man was called off after a few years. You see, we have the ability to reason, and after the hate had cooled, as we went unmolested in our new homes, we began to see that man is a benefit to us—when he is not at war. He grows many plants for his own use that are a very great help to us through the nectar they produce. His fruit trees furnish us with much needed nectar in the early spring. In return, we pollinate the blossoms for him, at a time when no other insects are available in sufficient numbers to accomplish the maximum set of fruit. Later in the summer, he grows other plants that yield nectar, such as clover, alfalfa, and cotton. We pollinate those blossoms. We need man and mankind needs us."

"I see," returned Greta. She felt that she had learned a great deal about man instead of the little that her instructor had promised. Then she said:

"I observe that there are flowers down below."

"There are," answered Masoul Fourteenth. "Also observe that those flowers are adequately attended by our bees. A pitifully few there are in this undisturbed ravine compared to the needs of our city."

They flew along a moment or two in silence.

"Why are you called Masoul Fourteenth?" asked Greta.

"It is an old custom in our city," returned Masoul Fourteenth. "Years ago, before the advent of human intelligence, every queen was called Masoul by the workers, but there was only one queen. Now the term is synonymous with failure to succeed the reigning Queen. When I die, there will be another Masoul Fourteenth

who was also a failure, to fill my place. You are intended to be the reigning head of the city, if you prove up, therefore you have an individual name. If you fail, you will merely become another numbered Masoul."

"I am sorry," said Greta, sensing something of remorse in the other bee's manner.

"For what?" returned the other. "Can I help it because I did not emerge so physically fit? I have sense enough, but that is not the only requirement. But I am satisfied the way things are. I do my duty and lay eggs willingly. I am called in the occasional councils which Thuros holds. And I certainly do not have the responsibility of waging a losing fight. That is yours."

THE ravine ended abruptly beneath them, and the clear stream that had flowed through it traced a peculiar path through the open plain below. Its course was broken and distorted by many ragged holes, and its waters lost their crystal clearness in a sluggish stream of mud. In every direction, the plain was pock-marked.

"You see the mess?" said Masoul Fourteenth. "Once the edge of the hill was a strip of wild flowers, and the field was blooming with alfalfa. The men watered the field with water from the stream, and nectar flowed into our city like a driving rain. Even the dam, the man used to divert the water, is blown to thunder."

"It looks bad," said Greta. A return of the feeling of incompetence smote her pitifully.

"What does Thuros think about it all?" she asked.

"She rages inwardly and has very little to say. She came out here recently to look the situation over again and barely escaped with her life.

When she returned, she set about rearing a new force of Queens. She hopes that you will be more intelligent than she is, and will be able to save the day. She feels that she has solved many problems to benefit the city during her lifetime, and that she will not live long enough to solve this one."

"Has she ever thought of reducing the colony population in order that the smaller city might subsist on what nectar there is?" asked Greta.

"I suggested that," replied Masoul Fourteenth. "I shall never do it again. Cavoon had rather die a proud city than revert to mediocrity. Why, our population is all of 500,000."

Masoul Fourteenth exhibited great pride in this fact.

"I am told that men's ordinary bees, with but one queen, are considered exceedingly strong if they number 100,000," said Greta.

"We are not ordinary bees," replied Masoul Fourteenth, firmly. "Even ordinary bees are proud of their homes if they have one they can be proud of. They defend it with their lives. It is instinct with them. Mankind is proud of its cities in proportion to their size and beauty. We get our pride in Cavoon from both sides. Cavoon had rather die tomorrow than to struggle along for years in mediocrity, eking out a precarious existence."

There was no question but that the older bee had put all the strength of her emotion into this statement. Greta felt her own feeling of pride swell with the thought of Cavoon's vast chambers filled with food, its teeming thousands of bees, and its rows and rows of combs loaded with the brood of bees not yet emerged. Then she thought of that lonely area at the rear of the city where the rows and rows of deserted combs stood empty and dark, with only here and there a bee

on guard. That dark, silent area was ever creeping toward the brood and must eventually reach it. Then what?

Greta swirled upward, high above her companion. The vigor of her decision had necessitated physical action, and the beat of her powerful wings steadied the flow of her will. She had graduated from the school of vacillation and fear. She would do or die.

The disturbance in the plain was increasing. There was a continued rumbling of deep, reverberating reports, and new holes in the ground were opening. Here and there a hitherto undisturbed bed of flowers dissolved in a cloud of dust, and Greta observed a larger stream of bees bound toward home. Then she saw a row of khaki colored, moving objects emerge from a deep trench and advance toward the south. She dropped lower to come closer to her instructor.

"What are those moving things?" she asked.

"Those are *men*," was the sarcastic reply. "Glorious man! So intelligent he transmitted his intelligence to us, and now he is destroying himself and us, too."

"Let's have a closer look," said Greta. She began to drop lower.

"Come back," commanded Masoul Fourteenth. "It is dangerous."

"Let's have a look," said Greta, as she continued downward.

Something passed the two with a horrible shriek and the speed of light. Greta felt the rush of it. She was tossed so violently about that she thought she had lost her wings. She was not sure that she had not until the cyclonic end-over-end spinning which her body had suffered ceased and she was once more in control of her flight. Then she continued down-

ward, forgetful of her companion in her sudden resolve.

Greta had almost reached the nearest of the men when the world seemed to dissolve in one uproarious burst of flame and thunder. She felt herself thrown violently upward by the force of the explosion. A maelstrom of stinging dust beat upon her body with the force of flying knives. A stench of some unutterably horrible odor filled her breathing tubes. She was beaten and choked into insensibility in a fraction of a second.

It was a minute later that Greta stirred, her consciousness returning. Although she was not so sure of it, nothing short of physical dismemberment would snuff the life from her powerful body. She had been stunned, but not injured. She found herself lying near the bottom of the shell hole. A short distance away, consciousness was returning more slowly to Masoul Fourteenth.

CHAPTER IV

FRED STEVENS, SEVENTH

THE two men dropped into the shell-hole with a sigh of relief.

They were Americans. One bore with him a machine gun of modern, death-dealing, highly efficient design. The other carried a heavy load of ammunition. Both breathed heavily while they regained their breath.

Fred Stevens, 7th, was the first to speak.

"The Captain said: 'Advance and establish your post.' Where? I'd like to know. In Hell?"

"This place is just as good," retorted the other, grimly.

"All right, we'll set up here. I think this is as far as we were supposed to go."

Fred Stevens and Martin Anderson set up the machine gun in a hurry. It was the work of but a minute.

"There is nothing to shoot at, so far," said Martin.

"They will probably counter-attack," returned Fred. "I'll watch, so you sit down and rest a bit."

It was when Martin sat down that he first noticed the bees.

"Hey!" he said. "We have company. Poor devils!"

Fred Stevens turned to look.

"Well, I'll be a son of a sea cook!" he exclaimed. "Queens! Both of them!"

"Queens?" said Anderson, questioningly. "Queens of what? Don't mention females to me. I have been in the war too damn long."

"They are Queen bees, anyhow, and they are of the untamed, intelligent race. I have never seen one of their queens before." Fred gazed at them in rapt attention.

"What's that?" said Martin.

"I said they are of the intelligent race. Two hundred years ago they were endowed with a measure of human intelligence. How much they retain, no one knows, but they are very smart."

"I have heard that legend," retorted Martin. "Nothing to it."

"Oh, yes, there is. Listen, fellow. When the summer drouth comes, the ordinary bees hang around the hive and loaf. They wait on better times. These bees get out by the thousands and improve their prospects for next year. What do you think they do?"

"I'll bite. What?"

"Their workers gather seeds from the honey plants that have matured and drop them where there are no honey plants. In other words, they plant their next year's crop. Now tell me they are not intelligent."

Martin Anderson's eyes opened a little wider.

"Do they do that?" he asked.

"They do. And I have a further argument. It is a family matter. It was my great-great-great-great-grandfather whose intelligence was imprisoned for a while in the body of a Queen."

"So you are one of *that* family of Stevens," said Martin. "Then what the hell are you doing in the war?"

"What do you mean?"

"I have always heard that Fred Stevens the First came back to human form from his supposed adventure, when his queen-bee body was crushed and went into the bee business in a big way. I understand that he substantiated his claims about his adventure in a measure by raising bigger honey crops than any one else ever dreamed of, and that he reared queen bees for northern buyers, that were so far superior to anything else on the market that he made a fortune out of it. And that he never claimed any secret methods. Just that he understood bees and their problems."

"That is quite correct."

"Well, since the fortune is still intact in the family, I would have thought that you could have bought enough government bonds to insure yourself a place behind the lines."

Fred took his eyes from the bees for the first time and looked intently at his companion.

"You wouldn't do that, either," he said. "I don't appreciate it."

"I'm sorry," said Martin. A moment later, anxious to forget the error, he said:

"I have heard that every other one of the lineal descendants is a 'lunatic' on the subject of bees, and that they all make some noted contribution to the science of bee-keeping."

"I am one of the lunatics," returned Fred.

He was again giving the bees his rapt attention.

"Look," he said. "One of them seems to have the nervous jiminy fits, and the other seems to be giving us a thorough looking over."

"Yes," said Martin. "One seems to want to go, and the other one is not in any hurry about it. She seems calm and collected. I rather like her."

"So do I. Look! Let's see if this works!"

Fred Stevens, seventh lineal descendant of the man to whom Greta traced her human intelligence, held out his hand. Greta took wing, circled, and alighted on it.

A faint shout was heard above the subsiding roar of heavy artillery. There came a noise of many pounding feet, and a whistle of bullets passed overhead.

"The counter attack!"

Fred Stevens' nerves instantly became taut as he was reminded of duty and danger. He hesitated a moment, however. Lifting the hand on which Greta rested, he pointed South.

"Listen, Queenie," he said. "There are the devils. They crossed the ocean, and they crossed Rio Grande. They are shooting up my Texas and your flowers. Go! Sting hell out of them."

With that, he tossed Greta into the air and gave his undivided attention to the gun.

CHAPTER V

GRETA, THE ADVENTURESS

GRETA circled higher and higher into the air and did not immediately leave the spot. The counter attack was at its height and she had learned that she was safer at a higher elevation.

This mess that humanity was engaged in was strange to behold. Why they should kill each other, Greta did not know. Prior to this trip that was so fraught with danger, she did not particularly care if men did kill each other. Her chief concern had been the welfare of the city that was to be hers, as it was affected by this strange activity of men.

Now, however, her attitude was beginning to change. She did not quite understand her own feelings at first, but they had been affected by her contact with the man.

Masoul Fourteenth had virtually commanded her to fly away and leave the dangerous men to their own folly. She had not obeyed that warning. Her mission on this trip was to learn all she could, and she had been tremendously interested in that human. What if it was dangerous? Masoul Fourteenth had said the men might kill her. What if he had? She took the chance and won. She was to do or die, and she had wanted to study that man. She had been strangely attracted to him.

The man had seemed kind. Greta had liked him. Now he was desperately engaged in defending his own life. With that thought, Greta understood her feelings. She had liked the man, and she sympathized with his troubles. He probably did not want his country torn up and his brothers shot any more than Greta wanted her beautiful city to die of starvation. Greta wondered what kind of men they were that were making the attack.

She stopped her aimless circling and directed her flight southward. Down there, somewhere, were the men that were shooting in her direction and causing the trouble for her friend below. She might die in the

attempt, but she resolved to look at these men, too.

Greta had not flown far before she observed the enemy-lines. She descended, cautiously. Men were standing in long trenches dug in the ground. There were a group of them directly under her, and she approached them quietly.

Greta had never been told that there are different races of men. She only knew of men as men, and she had no way of knowing that the men she approached were Asiatics, nor that here and there along the line there were Mexicans. She did not have the feeling of trust in these men that she had experienced for that one man in particular back in the shell-hole. For a moment, she circled at an elevation out of reach while she debated the question of what to do. Perhaps her feeling of distrust was mere prejudice, caused by her first experience with a man she felt attracted to. If her feeling were mere prejudice, it might be overcome by closer contact with the men below, and she decided to descend within reach.

Greta chose what she thought was the most favorable looking individual and alighted on the ground directly in front of him, her senses alert. She folded her wings momentarily, then spread them again as foreboding filled her being.

The man had been startled at first. He drew back. Then an ugly scowl spread over his face and he seized his hat. He made one quick pass at Greta. The rush of air threw her against the ground. He struck again, but he was too late. She was gone. Spurred by quick fright and compelling mistrust, Greta's powerful wings had carried her far beyond his reach.

Greta turned her flight toward the city of Cavoon.

She had learned a great deal, she thought. It was time now for ideas. But she was tired and her body was sore. She craved rest more than anything else, and in the beautiful city of Cavoon she could rest and think. Tired as she was, however, Greta thought on her way homeward, and the great idea came to her. It was well that it did.

As Greta approached the mouth of the ravine leading to her home, she was surprised to see a single drone flying aimlessly back and forth. As she drew near, he approached to meet her.

"Greta?" he said.

"None other," she said.

They entered the ravine and flew along side by side.

"You are in for the very devil," volunteered the drone.

"For what?" Greta asked.

"For taking such chances with your life. Masoul Fourteenth has been back and reported to Thuros."

"How was I to look the situation over without taking chances with my life?" asked Greta. "Thuros has been out there herself. She ought to know."

"She seems to think you were too reckless. Remember, she is counting on you to save Cavoon, and you can not do it dead."

"Of course not. But I am alive, and I shall save Cavoon."

THE drone thought of a number of things. He had great faith in Greta, and he admired her spirit. He admired Thuros, too, and respected her great intelligence. If only her temper were not so terrible she would undoubtedly be the greatest queen in the history of Cavoon. Now the intelligence and spirit of Greta were to be pitted against the temper of Thuros. He hated to tell Greta that

her fate was practically sealed. He could not, for he liked her, and he really believed she meant what she said.

"I admire you, Greta," he said. "You have spirit and courage."

Greta was very tired, and a sudden unnatural twist of thought swept through her brain. As humans, this might have been an advance made by male toward female. Even though mannish in intelligence, she was female in form and the drone was male.

"I am not flying high," she said.

The drone exhibited sudden anger. The buzz of his powerful wings, larger than Greta's, beat loudly on the air, and he flew a complete circle around her as she continued in her steady flight. Then he controlled his rage.

"Listen, Greta," he said, angrily. "Don't be a complete fool. We are not human. When I mate with you on high flight, if Thuros allows it, I shall die. The prospect is not entirely pleasant."

"I am sorry," said Greta, contritely. "I did not know that you were my selected mate."

"I am. For that reason I am named. I am Paul 141. My mother was Masoul Tenth, and her father was Thomas 223. I am selected just as you were. But we may never mate."

"Is Thuros that angry?" asked Greta.

"She is," said Paul.

"Do you mean to say that, after I was reared especially for the job of saving Cavoon from starvation, I am to be denied that privilege? That I am to be pushed back into the category of numbered Masouls for having taken a few chances in carrying out my orders to investigate conditions?"

"Thuros seems to want to think of you as a super-intelligent queen

capable of directing activities from a safe place. You see, if you could do that, she would consider you the most valuable queen ever reared. That is from the intelligence standpoint. She already concedes your physical qualifications to be perfect. If you have that mental ability coupled with your acknowledged physical superiority, think of what the city would lose by your death."

"To hell with Thuros," returned Greta, spiritedly.

"No man has ever said that and lived," said Paul soberly.

Greta's sudden outburst had not been born of disrespect for her leader. It was rather that her spirit revolted against what she felt was the injustice of it. She had been given to understand that every inhabitant of Cavoon was willing to die for the glory of her city. She was expected to save it from degenerating into mediocrity and a precarious existence, and she had allowed the spirit of self-sacrifice and loyalty to take possession of her being. She had taken chances with her own life in an effort to learn something of the conditions that she might combat them more intelligently. Now she found that she was censured for her own loyalty, and that she was to be punished. She pulled up quickly and alighted on a limb of a tree. She called to Paul to do the same. They were very near the City, and she wished to have a longer conference with her prospective mate.

"Listen carefully, Paul," she said. "I am assigned the task of saving Cavoon from starvation. No half hearted measures will do, nor will any that require that we play safe and take no chances. It is either do or die. You understand?"

"I do."

"Very well, I have a very definite

plan, and it involves a desperate chance. We may win and prosper and we may be wiped out. In any event, we shall lose thousands of our citizens. It seems that no one before me has had the courage to even conceive the plan. I did, and I had the courage to investigate the conditions first hand. It seems that my apparent recklessness has brought me into disfavor."

"Very much so."

"Why should it? Thorus is mighty and her mind is great, but I shall either prove that I am greater than she is, as she herself has wished, or I shall die. I defy her."

"You will not win in rebellion, Greta. Much as the city admires you, it will not follow you except as the Queen of Queens allows."

"You do not understand, Paul. I shall lead no physical rebellion. My loyalty to the Queen of Queens is as great as yours. It is just that I hope to win my point by unprecedented action. Your report on her temper indicates that I shall not win in cool argument, so I shall have to risk all on other means. You see, Thuros is old and conservative. You can feel that in her presence. I am young, vigorous, and—and—"

"Courageous," added Paul.

"At least, I do not think I am a coward."

"Well?"

"I would give my life to try the plan I have for saving Cavoon. Now it seems that my plan is about to be balked by conservativeness and temper. I am in for trouble anyway. It seems to me that I might have a chance to carry my point by sheer audacity, and I am willing to risk it. In other words, I want to aggravate the trouble I am in by demonstrating my self-reliance to the fullest extent."

"How?"

"I am not supposed to mate until she wills it. I am ready to defy her even in that."

Paul's senses reeled. Life had been sweet for him and he hated to relinquish it. Because of his intelligence, he knew that he would die instantly when he mated with Greta. Neither the intelligence of Thuros nor that of any of her predecessors had been able to overcome that physical law which was their inheritance. And yet Paul faced that sacrifice with courage. It was his city of Cavoon, and its existence was threatened. To make the sacrifice now would shorten his life, yet Greta might be right. He had confidence in her sense, her initiative, and her courage, and his loyalty to his city could not be questioned. A quiver passed through his heavy frame.

"Lead on," he said. "Fly very high. Fly above the trees, above the walls of the ravine, and into the sunshine. I shall follow."

CHAPTER VI

THUROS, THE FURIOUS

GRETA had no sooner alighted at the cave entrance than she was met by a special detail of thirty worker bees.

"We have orders to take you before Thuros at once," they said.

"All right," said Greta. "Let's go. I am tired and would like to rest, but if the old girl has something on her mind, I suppose she will have to unburden herself first."

It was obvious that the workers were taken aback. Such outspoken disrespect for their ruler had never before been heard. Not one of them said a word as they escorted Greta through the city.

For years of Cavoön's existence it had been the custom of the ruling queen to frequent one portion of the city more than any other. The first of these rulers had chosen that portion bearing the largest and straightest portion of single comb. It was a sort of "throne room." Here the roof of the cave was highest above the floor, and the ten foot comb that filled the space was a marvel in precision of construction. It dropped straight from the roof of the cave to the floor, presenting an even, unbroken surface as flat as a table top. There was a central comb between two others just as straight, and the brood, that these combs contained, numbered tens of thousands of bees. No relics of queen-cells protruding from the surface of the comb had ever marred these surfaces. They had always been constructed elsewhere in order that the beauty of the "Queen's Portion" of the city might not be marred. Now, however, Thuros was busily engaged in directing the construction of a queen-cell of unusually large proportions in the center of one of these combs. Greta observed this as she drew near with sudden misgiving. Thuros must be far more angry than she had thought.

"I salute you, Thuros," said Greta.

Thuros was still the ruling queen. Her mind was great, her will was iron, and her word was law.

"So you have returned," said Thuros, grimly.

"I have. I have been investigating as ordered. I shall report at your pleasure."

"That will never be."

"I do not understand."

"Then listen," returned Thuros. "I am breaking a long established custom. I am personally supervising the rearing of a new virgin within the limits of my own quarters, who, I hope,

will be able to take over my position. I do not expect to fail. You shall become a numbered Masoul."

"In what way have I offended?" asked Greta.

"You have been far too reckless with your life," said Thuros. "I had great hopes for you. But a dead queen can not rule this city."

Greta realized that the time for a decisive stand had come. She said, firmly:

"I am not dead. I have learned much. I can preserve the life of Cavoön."

"You think you can," returned Thuros, heatedly. "You will not. Tomorrow you shall mate with any drone other than Paul 141. You shall then be a numbered Masoul."

"That is impossible."

"And why is it impossible?"

"Because I have already mated. Paul 141 is dead. He was my mate."

Thuros' rage mounted by leaps and bounds.

"What! You have defied me?"

THE situation became tense. A circle of workers formed a guard around Thuros. She was their queen, and Greta could have easily vanquished her in mortal combat because of her advanced age. Such was their loyalty. Greta struggled to maintain her calm.

"Thuros, there is no time for half way measures. I have defied you because I thought it expedient and only because I thought by so doing I could win my point. I still defy you. You are too old. I am young. I have courage, vision and ideas. I can save this city if you will but allow me. Thuros, allow me to present my plan."

"Take her away!" ordered Thuros. "Sting her to death at the entrance to the city. Do it at once."

Greta's escort began to close in to see that she obeyed the edict.

"*Thuros!*"

Greta threw all the power of her will, her intelligence, and her emotion into that address. It was not an appeal. It was virtually a command. Her worker escort felt the power of her will and fell back momentarily.

"*What?*"

The instant reply that Thorus made was no less vigorous.

"Listen to me," Greta hurled at her. "You are very wise. I have been told of some of your great accomplishments and they mark you as a leader among queens. But, Thuros, you are now old, and your temper gets the better of your judgment. The instructor you personally picked for me, Masoul Fourteenth, told me that the entire population of Cavoon had rather die than see the city reduced to mediocrity. Why should I be denied that privilege of restoring Cavoon? I see a great future for Cavoon, and I risked my life for it. I have won so far. Why should I be put to death for displaying the courage you admire in your workers?"

It was within the power of Thuros to refuse to listen. She was not so unjust, however, that she would not listen to a last plea, even though she had determined that Greta should die.

"Because you are a queen," she said "I admire the spirit of self-sacrifice in my workers and demand it of them. Their lives are short, and they give them gladly for the glory of Cavoon. But a queen lives long, and the city could not exist without queens. The ruling queen must be particularly careful to preserve her life, for she is the soul of the city. Aside from that, you have openly defied me. Therefore, you shall die."

"I would die gladly for my city,"

Greta returned, hotly. "But when you kill me, you kill the life of Cavoon. I tell you that I can save Cavoon. And I shall not die gladly, for I shall not be dying for the benefit of our city, but because of the temper of a mastermind that has decayed."

"Take her away!" commanded Thuros. "Carry out your orders!"

Greta went peaceably. She knew that she could have fought, and that she could have claimed the lives of many of these workers, before one of them would have been able to get her deadly stinger to a vital spot. To have done so, however, would have lost her cause at once. She would ultimately have been overcome and killed. By going with them peaceably to the site of her execution she had a little more time. There might be a chance to save herself yet.

When they reached the cave entrance, Greta turned and faced her executioners. She had thought of one last chance, but she sensed indecision on the part of her escort. It gave her more time, and she was glad for that.

"Well?" she asked.

The workers watched her vigilantly lest she should try to escape. Yet none of them seemed anxious to put her to immediate death. At length one of them spoke, and it was with considerable hesitation.

"Greta, we like you tremendously. We believe you have great intelligence, and we should like to follow you as our ruler. Your personality makes itself felt in a most commanding way. We have confidence in you."

"So what?"

"If you say the word, we might work up a revolt. Thuros is old. We have—"

"Stop!" commanded Greta. "I am glad for your confidence in me, but if I were your ruling queen I would de-

mand your utmost loyalty. I shall not hear of rebellion. If Thuros wills it, I must die. But I will ask one favor of you before you do your duty."

"What is it, Greta?"

"Send a messenger to Thuros and tell her that I said: 'What a pity that a tempestuous old fool should destroy Cavoön.'"

The workers seemed relieved. They did not relish the thought of putting Greta to death, and to send a messenger would delay the fateful moment. They acquiesced to her request gladly.

The messenger left somewhat leisurely, for she dreaded her mission. When she returned, she was in a great hurry. She was very agitated. She was also minus one wing.

"It worked!" she radiated, with all the power of her agitated being. "It worked! Greta is spared!"

"Tell us!" they chorused.

"When I first told her, I thought she would die," the messenger said. "She went all to pieces. Then she almost chewed me up. By the time she got my wing torn off she was very nervous. Then she suddenly subsided and got very quiet. Then she commanded me to bring Greta before her."

Greta's nerves were tense as she listened. Then she, too, relaxed. She felt that, if allowed, she could sleep three days and nights without interruption. But she could not do that now. She must return to Thuros at once.

Thuros looked much older when Greta saw her again, a moment later. She looked very tired. Greta also saw that workers were destroying the queen cell, they had been so busily engaged in building a moment before. Her heart throbbed in relief as she saluted Thuros.

"Tell me your plan," said Thuros.

Greta told her in detail. When she

had finished, Thuros remained silent for a while. Then she said:

"You may win, Greta. If you do, you shall be Queen of Queens."

"I shall either win or die in the attempt," Greta said. "And now may I unburden myself frankly and without rancor?"

"You may."

"I am very happy to do so, Thuros. I did not relish sending you word that you were a tempestuous old fool. From my youthful point of view, your only fault is that your advanced age makes you too conservative in the face of this grave danger. Convinced of that, I decided on a risky procedure to carry my point. The history of the city belies my accusations."

Thuros seemed to think the matter was of little importance. It was evident that she was enjoying her sense of humor when she replied.

"There are no hard feelings. You won the argument."

CHAPTER VII

THE EXPEDITION OF FURY

GRETA had three days in which to complete her plans. The normal fighting force of the city numbered only 50,000 bees. Greta demanded that her expedition number 400,000 fighting bees, leaving 100,000 at home to carry on the activities of Cavoön. Thus there were some 350,000 bees that must thrust their stings through a pair of sharp sand-grains carefully mounted, so that they might use them repeatedly without loss of life. This took time.

On the day that the expedition was to leave Greta held one last conference with Thuros.

"Tell me," said Thuros. "Did you manage to select a sufficient number of squadron leaders?"

"I have. There are 8,000 of them. As you know, there are to be 8,000 fighting units of 50 bees each, and I have picked young and vigorous workers as leaders. They understand their instructions."

"If they follow them explicitly, you may succeed. But each fighter must strive to sting the selected victim as many times as possible. If half of them manage to sting the victim as many as six times each, he should die. It is important, however, that each group should sting its selected victim as many times as possible."

"They understand that," said Greta. "But are you sure that 150 stings will serve to kill a man?"

"I am not positive that it will in every case. Years ago a man tried to rob our city. He received 148 stings by actual count. He died before he got home. Another man might require more poison, and another might require less. A lot depends on the judgment your leaders show, and on your supervision."

"As for my supervision, let us hope for the best. I shall be in the thick of the fight."

"Be careful, Greta. We can breed workers by the thousands as required, but it is seldom that we can produce a queen such as you."

"I hope to return, Thuros, but that remains to be seen."

Masoul Eighteenth, second in command of the expedition, arrived to report that everything was in readiness.

"Then let us be on our way," commanded Greta.

THE sun was two hours high. In another thirty minutes the Americans were scheduled to launch another drive. Greta did not know of that impending attack, but Fred Stevens and Martin Anderson did. They were

watching the minutes go by in nervous anticipation.

"Just another damn drive," said Stevens. "Another damn drive in the same damn war, and where do we get?"

"Nowhere," returned Anderson. "We take a position from them, and then they either take it back, or take another one from us just as good. These Asiatics are the hardest dern fighters to whip that this country ever tackled."

"And we are the hardest dern country to whip they ever tackled. They are getting tired, and so are we. A big, smashing victory somewhere along the line would do much toward putting the fire out."

"Let's hope this is it," said Anderson.

He looked again at his watch, then glanced upward for what he thought might be his last good look at the cloudless sky.

"Oh, my gosh!" he exclaimed. "Would you look?"

Fred Stevens looked up quickly. He saw what seemed like an endless string of compact groups of insects flying at about 200 feet. The line of insects was roughly parallel to the American line, and was advancing slowly southward. Stevens could not distinguish the end of the line in either direction.

"What's that?" asked Anderson.

"It looks like ten thousand swarms of bees to me," returned Stevens. "But I never saw the like of it before. And such small swarms! They can't be swarms."

"Bees!" exclaimed Anderson.

Something in his tone indicated to Stevens a mixture of incredulity and satire. It was plain that he remembered the queen bees in the shell hole, and to have bees again brought into

the situation during the midst of deadly strife was a little too much for him. As for Stevens, he was almost as much astounded as Anderson. He was acquainted with bees as well as any man in the country, and had probably captured as many swarms as any man. All the little accidents, and all the little freaks of bee-behaviour he had observed, but this was something new. He fixed his gaze on them in wonderment, striving in his mind to solve the riddle of this unusual formation.

"Look!" he shouted. "They have stopped going forward. They are milling around!"

"Yeah, and look over here!" put in Anderson. "One group is descending."

Stevens shifted his gaze. He saw one group approaching the American front-line trench in a very leisurely manner. It was some fifty feet down the line. The group came to within a few feet of the soldiers, then continued down the line toward the two men. Half way to them, the group executed a momentary ascent and then a descent. The action was repeated, and on the second descent, the group was directly in front of Stevens. Here the group paused, and, simultaneously, the long line of miniature swarms began to descend toward the line of Americans.

"Listen," chattered Anderson, his body quivering. "It looks to me like a damn good drive is just about to be sunk. If those damn bees start stinging up and down the line, we are licked before we start. And we are due to go over in ten minutes!"

Stevens did not reply. He was not afraid, for he had been stung too many times for that. He had never seen anything like it. He was trying to analyze the mystery.

Anderson took off his helmet and

prepared to fight. Mentally, he was cursing the war in more ways than one. He knew he could not retreat, for he was in the army. But he had not volunteered to fight bees. He much preferred to do his fighting with something more tangible than an elusive insect.

What the two men did not know, of course, was that the two ascents and descents of the scouting group had been a signal from Greta. She had descended first, and had found that the men in the trench were white. These were her friends. She had signalled her flying army to descend and observe the white men so that they would know them. These were the men that were not to be stung.

Everywhere up and down the line the men were in a condition of extreme nervous tension. The expectation of going over the top was enough in itself, and now there was this added menace. They stood expectantly, helmets in hand. Stevens and Anderson could hear the subdued and anxious voices of their neighbors in the trench. Yet not a man was stung, and no man struck at a bee.

Greta was about to give the signal to ascend and continue the flight when she saw Stevens. She had been disappointed because she had not seen him, and a wave of kindly feeling swept through her when she observed that here was the man whom she had particularly liked in the shell hole. Without fear, she flew toward him. She observed that even he was a bit nervous, so she flew cautiously. He did not draw back nor offer to slap at her, so she continued. He did not hold out his hand. She sought it out, hanging by his side, and alighted on it. Stevens raised his hand slowly.

"Well, I am a—!" he said.

"What is it?" asked Anderson.

"A Queen bee," said Fred, slowly. "And it sure as hell looks to me like the same one that was so interested in us before!"

"Get out!" retorted Martin, half believing. "You are going nuts!"

"Listen, Little Lady," said Fred, suddenly. "You get out of here. This is no place for a lady, and hell is going to pop loose in a minute. If you want to fight, go on over yonder."

With that, he tossed her into the air.

Greta was exuberant. She had found him. She liked him. Her confidence in him and his gentle treatment of her made her glad that she had cast the lot of the bees with these men. Then she forgot her emotions in favor of the work at hand. Her flying army rose almost in unison, and they continued southward. They flew swiftly, and in a few seconds the small hazy group of bees were out of sight.

"Well," said Martin, heaving a tremendous sigh. "The psychic power of the beekeeper has saved the day. Now we can be shot to death instead of being stung to death. What a war!"

"I wish I knew where they are going," said Fred.

THE thunder of artillery rent the air as the barrage commenced. Men's nerves grew taut and they forgot the bees. In just a few minutes it was live or die, shoot or be shot.

Greta's army was over the front line trenches of the foe when the barrage commenced. She was on the verge of giving the order to descend and fight when she observed the bursting shells below and the tremendous damage they wrought. She hesitated. She knew about those explosions from her own experience. Instead of descending, she ordered her army to rise to a higher level.

Greta watched closely the action be-

low her. She observed that the explosions were limited to a zone up and down the line where she had planned to attack. Then she observed that the zone of explosion was moving southward. The barrage was advancing.

"I want several volunteers," she announced. "I want them to go below and find out what is happening."

The first bee to return reported quickly.

"Men are coming out of holes in the ground," she announced. "They are taking their places in a trench facing in the direction of our friends. They have peculiar instruments in their hands. They look nervous."

What Greta did not know was that the Asiatics had been expecting this attack. Thousands of their troops were concentrated in this sector. The trenches were infested with machine guns and bayonets.

"Descend at once!" ordered Greta. "Fight the yellow man to rout! Sting him to death!"

"Through that barrage of flying missiles below?" asked a lieutenant.

"Through everything," ordered Greta. "It is now or never. Cavoön lives or dies as a result of the outcome of this attack. Follow me!"

Greta's army followed. They descended like arrows in swift, downward flight, true to their mark.

Thousands of yellow men, veterans of three years of bitter struggle, were at their posts. They were facing death, but they were expecting to inflict a terrible toll of death upon the enemy. Their eyes were to the north, where they expected to heap up row upon row of soldiers with their machine guns. They were not looking upward. They did not see the force they could not reckon with as it descended toward them.

Greta's forces went into action like clockwork as they reached their objective. It is doubtful if ever greater bedlam ensued, or if anything any more serious ever went wrong with a well planned defense. Thousands of men received their first prick of the painful, venomous sting simultaneously. A mingled shout of pain rose from the trench in a united voice as the attacked men felt not only one sting in the backs of their necks, but ten, fifteen, and twenty. There was a second of respite as the men became aware of the flying clouds of bees that were surrounding them. Then there was an attack direct to the faces of the victims, quick as a flash. It was executed like lightning. The men were stung about the face and eyes by dozens of vicious bees who dealt out misery with a vengeance, and who were out of reach before the men had time to slap at them. The clouds reformed for an instant, then sought out new prey.

Of the tens of thousands of men in the trenches at the time, a full fourth of them had been stung. The rest had been stricken dumb by the sudden attack. They turned to see their companions in misery, and were awed by the suddenness of it. Before they could react, thousands of these observers were themselves attacked with devastating results.

The morale of the defenders broke down completely. The greatest single aid to Greta was a characteristic of human nature that she did not know. Many a man, who is courageous to the utmost and afraid of no man or beast, is afraid of a bee. Men who have been decorated for valor in action will not go near a colony of bees. "Give me something big enough to fight," they say. "I can't see a bee." The psychological reaction to the uncertainty and

not knowing when or where the sting will be administered is unnerving.

SOME of the men who were not attacked at first stood by their posts and prepared to fight back the attack of the Americans. They thought more of the war than of the troubles their companions were having. Greta's orders were to attack by surprise wherever possible, consequently these men who remained to defend their position against men suddenly felt the brunt of the attack by the insects. As a result, not a machine gun was left in action on a two mile sector. Thousands of men were diving for the dugouts in great haste. Thousands of others were incapacitated by pain and closing eyes and did not know what to do. Other thousands were viciously swatting at the bees that were attacking them and suffering a score or more of stings for every bee that they killed. Thousands of the men were unconscious and dying as the poison coursed through their veins. And still Greta's army did not relent.

In the ranks of the running, advancing Americans there were thousands who wondered at what had happened to the defense. Most of them had expected to die as the result of machine gun fire, but the ranks were still intact. Where were the machine guns? The waves and waves of men behind the leaders were expected to take the position after the leaders had died, but those in the lead were still living. They continued to run. Was the enemy retreating?

The first men to reach the top of the enemy's embankments were dumbfounded. They jumped over and down, prepared to shoot, stab, and be killed. They did shoot, and they did stab with bayonets, and then they became aware of the fact that there was virtually

no resistance. Those that might have resisted them were too busy fighting bees, and those, that were not slapping at the fighting insects, were either blinded, unconscious, or broken down with fear.

At first, the Americans prepared to fight the bees themselves. They remembered, however, that they had just seen the bees a few minutes before without difficulty, and they quickly observed that they were not themselves attacked in their new position. Then they made a business of taking prisoners. The trench was theirs.

Greta did not fully understand the proceedings in the "man against man" side of the war. She did observe, however, that the white men had advanced to her position, and that they killed at first. Then she observed that the yellow men were being herded in groups with their hands up and that they no longer retained their instruments of war, whereas the white men did. As she observed this latter development, she reasoned that the situation was well in hand for her friends. Yet her friends were only here, and there were more yellow men to the south. She ordered her forces aloft and directed that the attack be carried to the south.

The trench was completely taken when Greta's army departed. The last of the waves of advancing Americans were dropping over the top to be excitedly told what had happened. The first to arrive had regained their breath. They watched the bees in their southward flight. Their flight was accompanied by an angry hum. Thousands of the bees had been killed, and their sisters left alive were bent on vengeance. Desperate in the first place, they were now angered and doubly ferocious.

Fred Stevens watched the bees de-

part. He was suddenly inspired. The barrage was in front, and the bees were following it. He jumped to the top of the trench where he could be seen.

"Follow the bees!" he shouted. "The barrage is ahead, the bees are ahead, and here we are! What the hell are you waiting on?"

His cry was echoed by many throats up and down the line. It served as an inspiration for the entire army. They advanced.

The second trench was taken, and the third. The enemy was routed.

When the day was over, the scene of battle was far removed from Greta's home. She and her bees had turned back at five miles. The Americans had not. The enemy position had been penetrated and their lines were broken. That day they drove a long triangular wedge into the enemy lines twenty miles across the base. The apex of that triangle was twenty-five miles from Cavocon.

The ravine was strangely quiet. There were no echoes of deafening gunfire, and down in the valley there were no great holes opening in the earth and destroying flowers. There was only the rumbling of trucks across a new road that did not disturb the bees in the least.

CHAPTER VIII

GRETA, QUEEN OF QUEENS

"I SALUTE you, Greta," said Thuros.

"I salute you, Thuros."

"Today you are to be crowned Queen of Queens."

"Before your death, Thuros?"

"Before my death. I gladly relinquish Cavocon to your able direction. You are greater than I am. I shall

spend the rest of my days in peace and enjoy your reign. I shall watch your accomplishments with great pleasure."

"It is unprecedented," said Greta. "I cannot despoise you. It is not loyal."

Thuros reverted to an attitude becoming her authority.

"I am Queen of Queens. My word is law. When I command that you be crowned Queen of Queens it means that you shall be. When you take my place, if you decree that I shall die, I shall die. Do you understand?"

"I understand, Thuros." There was no cringing in her reply. There was only obedience and respect for the law of Cavoön.

At the appointed hour Greta and Thuros, accompanied by the Masouls from One to Nineteen, marched in stately procession to the mouth of the cave. All other bees were quiet, eager, and alert except for a hundred thousand appointed workers and drones. The soft buzzing they made with their wings was so even and regular as to amount to the soft, low note of a song. Greta read the tone of rejoicing in that note. She interpreted the spirit of forthcoming loyalty in the attitude of each and every one as she passed. A feeling of love welled up within her. These were HER bees. Her life was to be devoted to their service. She marched on, her long legs never faltering, her body flowing with the force of life. She was to be Queen of Queens!

Thuros, in the lead, turned abruptly to the right at the city's entrance. Greta followed, and they took a position of vantage on a tiny ledge. The numbered Masouls took wing and sought another ledge slightly lower.

"This is for you," said Thuros, feelingly. "The pride of Cavoön, and the strength of Cavoön. Watch and listen so that you will miss nothing."

The low note in the city died abruptly. There was a period of unbroken quiet.

"In honor of the solemnity of the occasion," said Thuros.

Greta felt that she understood. The details of the coronation proceedings had been kept from her in order that they might be more impressive. She was glad for that. So far, the solemnity of it had impressed her strongly.

Another low note of different pitch was just beginning. It welled forth from the city in ever increasing strength, and, unlike the other note, it was not pleasant. Greta thought it more like a wail. Fearful, she asked:

"What is that?"

"The wail of sadness. It is in honor of my passing. They love me and they hate to see me go. That much is for me."

It was evident that Thuros was steeling herself for the situation. Her reign was fast slipping into history. Her life had been lived and her rule was at an end. She had reached the evening of life, and the grandeur of her reign was to live, from now on, in memories. Greta was touched. The wail was genuine.

"I shall always respect you, Thuros."

"Never mind. Live your own life, and make your city better than you found it."

The wail died away.

"The next is in your honor. The shout of rejoicing that a new queen is crowned. It is a vote of confidence."

GRETA has been profoundly impressed on her march through the city. Now she was almost overcome. There was no doubting the genuineness of the tone. Beginning softly, the tone had increased in volume almost instantly until it amounted to

a roar, and yet its soft quality of rejoicing was unaffected by the volume. Greta's bees were putting their hearts and souls into it, and she read the message of undying loyalty and devotion. Then she caught the spirit of it. She closed her senses to everything external and was carried away in the song. It had become one of the seasons. There appeared in her mind the vision of vast fields of flowering clover, and a million happy bees were gathering their loads of sweetness. The combs of the city were extended in gleaming yellow wax, to be filled and capped with the sweetest of sweets. Then the summer with its program of duties. Seeds were planted in waste places, and seeds were stored. Then followed the fall with the replenishing of stores from the fall flowers, and the packing of yellow pollen for the winter needs in open cells. The quiet period of winter followed when her people must remain at home. She saw no discontent in her vision, but just quiet waiting for the spring. The song then came to an end.

"Did you get it?" asked Thuros.

Greta did not reply.

"You did," said Thuros. "Now for the parade!"

The rush of bees from the entrance was precipitous. Greta marveled that so many bees could fly from one small opening so rapidly and in such dense formation without serious interference. She felt the breeze from their wings, and the ledge where she was perched was cast in shadow as the bees passed between her and the sun. Somewhere, deep within her being, instinct was calling her to join in the mad rush. It was the instinct to swarm, and she had to deny it, time and again. This was not a swarm, but the parade of coronation.

The flow of bees ended abruptly

and Greta looked above her. As far as she could see the air was filled with swirling, swinging, circling bees. They seemed possessed with drunken delight as they filled the air with their bodies and the roar of their wings.

Gradually, the bees disappeared. Their seemingly aimless circling had not been totally without plan, for they had disappeared in a body up the ravine. Then they returned, and this time they were not flying in circles. In unhurried flight they streamed past Greta in orderly procession flying leisurely and in straight lines. They were on parade. Greta, Thuros, and the Masouls were the reviewers.

"The strength of Cavoon," said Thuros.

It was evident that Thuros was extremely proud of the tremendous population of the city. Greta did not blame her in the least. She, too, was proud. It seemed the procession would never end, and she was amazed at the great strength of numbers which this parade displayed so effectively.

The last of the parade had passed but a moment when the flying column of bees reversed itself and came back pell-mell. The air was again filled with madly circling bees and the roar of their wings was even greater than before. The mass became more compact, and Greta observed that it was concentrating near a tree. She saw that several bees had taken rest upon a limb, and that the others were closing in. A few minutes later all was quiet. The entire parade had come to an end, and, with the exception of the observers, the entire population of Cavoon was clustered on a limb. The cluster hung down the limb for ten feet, and the mass would have filled a barrel.

"What a magnificent swarm!" Greta thought.

Thuros stirred slightly. She seemed to be shaking herself out of a trance.

"You are now Queen of Queens," she said. "I salute you as your humble servant."

The statement came as a shock to Greta. She could not realize at once that the enthronement was complete, and that from now on she was the sole arbiter for so magnificent a city. Then she realized that Thuros was speaking again.

"You are to take wing now. Circle the cluster once and then alight on it. When you take wing from there, your bees will follow you home."

CHAPTER IX

THE HOPEFUL MAN

FRED STEVENS advanced to the center of the room with military pep and precision of movement. He brought his heels together with a click and saluted.

"Sit down, Stevens, and be at ease."

General McKelvey motioned him to a chair.

"It seems a peculiar coincidence," he said, "that you should request to see me just when I was getting ready to send for you."

"Perhaps we have the same thing in mind, sir."

General McKelvey rose nervously from his chair. He strode to the door of the room and peered out. He instructed his orderly that he was not to be disturbed until Stevens had been dismissed. Then he locked the door and turned on Stevens. It was evident that the man was in severe mental stress. His eyes were bloodshot.

"Don't tell me you wish to see me about bees," he said. "If you do, I think I shall have you shot."

Fred Stevens was at once ill at ease.

He was not acquainted with the General's characteristics. Worse still, he did not know of the forces that had been disturbing the man's peace of mind.

"What did you wish to see me about, General?" he asked, stalling for time.

A degree of nervous tension seemed to pass away from McKelvey and he returned to his chair. He sat facing Stevens squarely.

"I am hoping against hope. I am dreaming dreams, which a good general should not do. —I wanted to ask you some questions about bees."

"Yes, sir."

"I have heard the whole story. I know about the part you played. I have had your records looked up and I found that you are a beekeeper of note and an authority on the subject. Stevens, first I have to know *why* those bees did what they did!"

"I don't know, sir."

The General's nervous tension showed signs of returning. It was plain that the answer had disappointed him and that it was distressing him.

"Then why did you wish to see me?"

It was Stevens' time to be dismayed. Faced with the immediate necessity for revealing that which lay in his mind, he almost lost his nerve. General McKelvey observed this at once.

"Be at ease, Sergeant, be at ease. We are in a bigger predicament than you realize, and if you have anything on your mind that may possibly help us out, I must hear it. What is it?"

"Thank you, General."

STEVENS was obviously relieved. He stood up and advanced to a position directly before the General's desk. "General, I have an idea that I would give my heart and soul to try. Strange things have happened and I do not profess to understand them. It

is the strange things that give me the dreams I have had, and I have a vague sort of stirring intuition that what I have in mind may possibly work. Perhaps it is because I feel almost akin to the bees. You know, it was never definitely settled whether my ancestor, Fred Stevens the first, retained a portion of bee intelligence after his unusual experiment. I believe he did, and sometimes I think it has affected my own characteristics. On the other hand, it may be because I am a plain damn fool, but I—I—"

General McKelvey was leaning forward.

"Go on!" he commanded. "Get it over with!"

"General, if you could give me a little time out and place some resources at my disposal, I would investigate the possibilities of getting those bees interested in another attack!"

"Thank God!" McKelvey relaxed in his chair and breathed heavily.

"Now listen, Stevens," he said. "Forget for the moment the difference in our rank and consider the fact that we are both American citizens interested in driving these yellow devils out of America. Remember, too, that this is in utter confidence. You understand?"

"Yes, sir."

"Very well. Washington is congratulating me on our successful drive. They want me to repeat with another. They seem to think that I have suddenly developed into a military genius. Stevens, you and I both know that we would never have advanced to this position if your bee friends had not rendered such great help. It is not that I am a sudden genius, but that fate has played into my hands."

"Did Washington hear about the bees?"

"Of course. Do you think they be-

lieve it? Hell, no! I did not believe it myself at first, because I did not see them. But there are 100,000 men under my command, and I know they are not all liars. Now I can't sleep because of it. All I can hear about or think is bees, bees, bees. And now we need them worse than ever. Can you imagine why?"

"If you have orders to continue the drive, I can."

"Of course you can. Every man in the army knows that the enemy's position at San Saba Peak and surrounding terrain is impregnable. If we launch a drive against that position, we shall be gassed out of business and shot to pieces."

"And blown to hell," put in Stevens.

"Correct. However, if we could take that position—Stevens, it is an idle dream to think of taking it, but if we could, think of the results."

"I have always understood that the point was vital."

"It is. There is no need to go into details, but if we take San Saba Peak, it will be a relatively easy push from there to San Saba, and from there to Fredericksburg. Once we do that, the enemy will be divided in two halves and rendered helpless. And when I said helpless, I meant helpless. Stevens, when the American Army reaches Fredericksburg, the war will be over."

The vision of the war actually being at an end was almost too much for Stevens. He said nothing.

McKelvey had become enthusiastic in outlining the possibilities. Then the stern realities of the situation returned to his tormented mind and he became once more the troubled general that he had been.

"The position cannot be taken, Stevens," he said, "unless there is something equally potent to render the en-

emy ineffective as there was the other day. If the bees could be induced to repeat that performance one more time before the enemy has time to prepare a defense against them, there would be a splendid chance for us to succeed. Otherwise, there is not. We have to drive anyway. Washington's orders. We shall either take the position or we shall all die. Stevens, I love my country and I want it to win this war, but I don't like to see my men all die!"

"I understand that, General." Stevens' voice was very low.

"Then do the best you can. Your request is granted, of course. It amounts to a command. But listen to this. We are on the job and we *know* what did happen. Washington is a long way off and they say they do not believe in fairy stories. If they knew of the plans being made in this office—" The General shrugged his shoulders.

"I understand that, too, sir."

"Very well."

General McKelvey straightened up and resumed his strict military bearing. It was plain that the personal side of the conference was at an end. The time had come for action and he had other duties. He signalled for his orderly.

"Orderly," he commanded, "write out an order to the effect that Sergeant Stevens is assigned to special duties until further notice, and that he is responsible only to General McKelvey. —Need any help?" he asked, turning to Stevens.

"Martin Anderson," said Fred.

"Add the name of Martin Anderson to that order," dictated McKelvey. "What supplies, Stevens?"

"I shall need a truck, and—," Stevens paused, directing a meaning nod of his head toward the orderly as he held McKelvey's eyes.

McKelvey understood at once.

"Orderly," he commanded, "write out an order on the Commissary that Fred Stevens is to be supplied a truck and anything else he asks for."

"Will that suffice, Stevens?"

"It will, General."

"Then get the hell out of here and get to work. We are in a damn war and it is results that count. If you get the job done you are a hero, but if you fail, you are just another damned sap. I don't want to see you again until you are a hero."

"Yes, sir, General." Fred clicked his heels together and saluted. A second later he closed the door after him.

CHAPTER X

THE SWARM INTELLIGENT

GRETA had hardly become accustomed to her new rôle in the life of the colony when the strange thing occurred. It had been three days since she had assumed the throne of Cavoon, and, aside from the thrill and emotions of the coronation proceedings, her days had not been strictly pleasant. There had been too much on her mind.

To put it bluntly, she could not get away from the fact that the most practical and probably the only practical procedure to follow would be to reduce the population of the city through the curtailment of brood-rearing operations for a period. The plain facts in the case were that the food supplies could not possibly warrant a continued population of around the 500,000 mark. It was true that the war was now far removed from their pastures, but it required time for the plants to grow in the devastated areas, and the food supplies were rapidly approaching the danger point. To

disturb the equanimity of her devoted followers with this procedure would require the utmost in tact even though her word was law. She racked her brain for another way out.

It was in the midst of a period of deep concentration on this subject that word was brought to her. A middle-aged worker of the upper stratum of intelligence told her.

"Greta, there are men outside. They have arrived on the bank of the ravine in a motor truck and their antics are strange."

"Has anything out of the way happened yet?" asked Greta. She remembered that the history of the colony told that men had tried to rob the city once and had failed.

"In a way, yes. The two men got out and began to set up a wooden trough. The chief of the guard got suspicious and ordered an attack by six workers. One of the men made a dive for the truck and secluded himself out of the reach of our warriors. The other stood and took it. I was there, and it seemed to me that the man was hurt. I seemed to feel that he thought we ought not to do it. The chief felt it, too, and called off the attack. Now both men are busy again."

"That is interesting," said Greta. "I shall investigate personally."

She hurried to the cave entrance and took wing. She approached the two men and had her suspicions and hopes confirmed. She recognized them, one as the man she especially liked and considered her friend, and the other as his companion in the shell-hole. The sudden delight she felt at seeing Fred Stevens again, however, was not without the slightest of misgivings. She found it difficult to explain why they should seek out her home, and the vague fear that their purposes might not meet with her en-

tire approval was hard to dismiss. She hovered about, not approaching too closely.

Stevens and Anderson were filling the trough with a liquid. They made numerous trips to and from the truck with buckets and poured the contents of the two well filled buckets into the trough on each trip. The liquid was a syrup made from sugar and pure water. Floating in the syrup in the trough there were a number of slatted wooden floats.

"So the bees will have plenty of footing," explained Stevens. "Otherwise some of them would drown."

The work was finished, and the two men straightened up.

"I hope they find it soon," said Fred. There was a far away look on his face. His mouth had the faintest twist of a smile, and his eyes seemed half clouded and half expectant as though he were hoping for something that he knew was the most improbable of all things. He gazed at the bees that were flying about as though he hoped to see a particular queen, even as his experience with ordinary bees told him that such a thing would not happen. With ordinary bees, he knew that the queen would be inside the cave and that she would not venture out except with a swarm. Yet he had seen *this* queen twice.

His eyes caught sight of a lone bee, not a drone or worker, and lighted on her with hope. She was larger than the rest. She was circling ever so slowly and her motions were most graceful. With her in motion, however, he could not be sure. With half a prayer, he held out his hand toward this one bee.

MEMORY flooded Greta's consciousness. This man had held out his hand once before. Twice she

had alighted on it and had met a kindly reception. It was an invitation. She forgot her fears. She came to rest on Fred Stevens' hand.

Martin Anderson's eyes were wide. "My God, Stevens, how do you do it?" he said. "Have you got supernatural powers? Here we have come for miles, stayed ten minutes, and you call the queen out with a wave of your hand. I—just—don't—believe—it."

"I believe it, but I don't understand it," returned Fred. "There is just one thing I can say. We are extremely fortunate, for I believe this little lady is the big boss hereabouts. She knows more than I know about something, and I don't know what it is. My little lady friend here seems to be my own particular ally."

"I'll say she is," said Martin.

Greta was resting perfectly still on Fred's hand. She was wondering what the next move was to be. Something was afoot and she wanted to learn what it was.

"Let's try this," said Fred.

Very slowly, he lowered his hand toward the trough. Then, still more slowly and evenly, he brought his other hand nearer to Greta and prepared to pick her up by the wings. Greta stirred, nervously, and Fred increased the deliberateness of his motion. This was new to Greta, and she was hesitant. She was prepared to fly on the instant. Yet the extremely slow motion of the other hand reassured her. Surely, the man meant no harm. She allowed herself to be picked up. Then she was set down on one of the slatted floats in the trough. Her feet were slightly wetted.

The liquid appeared as water to Greta. It had no odor. She moved around a bit debating the question. What was this move for? Apparently,

the man wanted her to notice the liquid. If so, it must be good for something. Then that must be it. She decided to sample it.

Greta was quite surprised as she noted the sweetness of the liquid. It was amazing that such a thing should happen. The liquid had no characteristic flavor of the nectars she knew, yet it was sweet, and the glorious thought that it was the much needed food her city's life demanded set her heart to pounding. Wildly excited, she took wing and circled high aloft. The thought of food! food! food! rang in her brain! Now it would be unnecessary to curtail brood rearing. Was it a miracle that the man should bring it?

The thought sobered Greta. She had befriended the man, she thought, even as she sought to work out her own salvation, as she fought for her city. Even in bee-life as she knew it there was such a thing as gratitude.

Greta returned to the entrance to the cave and gave instructions. There was food in the trough the men had brought and the point was to go and get it. They did, while Greta again circled in the air.

There was sufficient food there to take her workers more than the rest of the day to obtain. It would suffice as life giving stores for weeks, and if the men should replenish it? Greta reeled dizzily at the thought of it.

When Stevens and Anderson left that day the food situation for the bees had been solved for weeks to come. The men had laboriously set up a large galvanized tank and connected this to a float valve in the trough through a flexible hose line. They had then filled the tank half full of water from the creek and stirred in sugar from cloth bags until it was dissolved. The trough would not empty until the

supply in the tank was exhausted.

"That is partly gratitude on our part, and partly policy," said Stevens, as they drove away.

"The policy is what?" asked Anderson.

"Remember that these bees are of the intelligent race. I want the little boss lady to do a lot of thinking about that syrup supply. I want to gain her complete confidence. Furthermore, I want them to put on brood and raise an army."

It was two days later that the two men rumbled over the irregular road again in their truck, this time bound back to Cavoon. The truck carried a partial load.

"You got quick results," said Anderson.

"I knew where to wire to get it," replied Stevens. "I have frames of white clover honey from Iowa, buckwheat honey from New York, and sumac honey from Texas. They all came by plane, of course. Military shipment."

"You haven't much with you."

"No, we don't need it much here. We have some, of course, but the transporting equipment is mostly ten frame hives with empty combs for the bees to cluster on. We shall give them the combs with packed pollen and honey if, as, and when we get the bees where we want them."

"You are sure some optimist," remarked Anderson. "But I believe you are going to get the job done."

STEVENS had held his hand out—stretched for several minutes before Greta alighted on it. Her bees had been so busily engaged in working on the never failing supply of syrup in the trough that they had not immediately noticed his gesture. When one of them did, she reported to Greta, and Greta had not delayed.

Her gratitude to Stevens was unbounded, and she craved to know his purpose. She hoped that she might learn somehow through this contact with him that he so openly invited.

The rear doors to the screened-in truck were opened. Inside of it, four standard hive bodies were tiered and secured against toppling. They bore within them twenty frames of empty comb and twenty frames of stored pollen and sealed honey. Stevens moved slowly toward them. He was holding Greta close to his face and talking earnestly.

"Now listen, queenie," he was saying. "Of course I know you don't understand a word, but I have to get it out of my system. I need you badly. I have a perfectly swell home all fixed up here for you and your lady friends. We will feed you well and we want you to help us. You have got to, little lady. We need you in our business. Just move in this little home and we will give you a nice long ride and won't hurt you a bit. Then we want you to fight like hell. Be a good girl and come along. We have just got to have you."

Stevens set Greta down gently on the alighting board of the hive. He watched her with bated breath as she disappeared into the interior. Five minutes later he watched her walk calmly out and take wing. She circled him twice and then flew straight for her own city.

"Now what?" asked Martin, softly.

"We'll watch and wait and hope for the best."

THE matter was so completely out of line with anything in the history of Cavoon that Greta was not immediately sure of what she wanted to do. She sought out Thuros. She wanted to know what the older queen

thought of it, even though she knew she might not take the advice Thuros might have to offer.

"What do *you* make of it?" Thuros asked. She was inclined to be reticent.

"I would say the man wants us to establish ourselves on those combs he has brought. There is food there, and empty combs available for brood. The whole business is on the inside of his truck, which leads me to believe he would take us somewhere else."

"I can't find any flaws in that argument," returned Thuros.

"Why, then, do you think he wants us?" asked Greta. She had her own ideas, but she was very much interested in knowing if Thuros might think the same thing.

"I think," said Thuros, "that as far as the man is concerned, his struggle with the yellow men isn't over. I think he wants you to help him some more. I think he wants to take you to where the battle is and have you repeat your first performance."

"I had exactly the same thought," said Greta. "Can you guess what I am going to do about it?"

"You are Queen of Queens," said Thuros, non-committally. "Your word is law."

"I am going."

"I thought you would, Greta. But may I ask you why you make this move?"

"For three reasons, Thuros. In the first place, how do we know but that the white men, our friends, might fare badly at the hands of the enemy in the future, and the war would return to our territory? Then, again, the man seems capable and anxious to supply us with plenty of food, and you know how desperate the food situation is here without his help. Although I have not discussed it with anyone, it was

an idle dream to even think of maintaining our magnificent population. So, if I take 300,000 with me and leave 200,000 here, both parts of the city will fare much better, and that which remains can easily build 'back up' to 500,000. Finally, Thuros, I like that man. He seems desperately in need of us. He has befriended us in our necessity. I am going."

"Do you think you shall ever return, if you live?" It was plain that Thuros was anxious.

"I hope to return to Cavoona, Thuros," said Greta. "However, you are to act in my stead while I am gone, as though you never expected to see me again. You are again Queen of Queens in Cavoona. I expect you to rear the finest queen that can possibly be reared to succeed yourself. If I am not back by the time she is old enough to mate, then she shall mate and become your successor at the time you shall appoint."

"I understand. When are you leaving?"

"Before the sun shall set."

"Then you must hurry."

Thuros concurred with Greta in the opinion that it might be better to lead the expedition from the city as a swarm and settle on the limb of a tree rather than fly directly into the man's prepared city. Greta was familiar with the methods men used in hiving swarms from the history that had been handed down to her. If it were true that the men actually wanted her bees to settle themselves in his hive, she would have verification of this belief through his going through the motions of placing them within the hive himself.

It required perhaps thirty minutes for word to be spread through Cavoona. Greta explained in terse phases why the expedition must go. She used the

same arguments she had used with Thuros, and, aside from that, it was her command.

There were no dissenters. So great was the love and loyalty of Cavoön for Greta that the problem was to select the 200,000 that were to remain at home.

THERE had been very little conversation between Fred Stevens and Martin Anderson. The former had sat with his eyes glued on the entrance to the cave where he had watched his "little lady" disappear. His expression showed shifting waves of hopefulness, patience, and the more frequently recurring fear of failure. The General had said that if you get the job done you are a hero. He did not care so much for the hero part of it. The part that hurt was that if you did not get the job done, you were a "sap" in the eyes of the public. He did not wish to be considered a nitwit in the eyes of the public, particularly in so far as bees were concerned. If the world knew what he was trying to do, and if it learned that he had failed—

Martin Anderson was more impatient. Looking at it from the standpoint of a layman, this all seemed very impossible. But, on the other hand, he could not bring himself to consider it from that standpoint. Who was he to judge what the bees would do? He had learned that these were bees gifted with the intelligence of mankind itself. So why could they not be reasoned with? And why should not Fred Stevens be the man to do it? Fred knew bees as no other man in America. More important than it, possibly, was the fact, that it was the intelligence of his ancestor that had been given to these bees. How should he know but there was some invisible

bond between them? Whether it should be done through some invisible bond, through Stevens' understanding of the bees, or the intelligence of the bees themselves, Anderson did not know, but he did feel vitally interested in the outcome. Stevens was his bosom friend, and it would hurt him tremendously to see him fail. In a moment of anxiety he sought to relieve his own nervous tension. He produced a much battered harmonica from his pocket and began to play. He elected to render his interpretation of "The Parade of the Wooden Soldiers."

Stevens was subject to the acute realization of three very active senses at the same instant. His eyes were dilated with joy as he watched the glorious swarm begin to pour forth from the cave entrance. His ears brought him the melodious strains of the march his friend was playing. His sense of feeling told him that his heart was pounding harder than it ever had before. Then an instantaneous thought told him that no better coincidence could possibly have been arranged than for his friend to begin playing just at the moment when the swarm should choose to issue.

"Keep it up!" he shouted.

Anderson became aware of the swarm. Why his friend should want him to continue to play he did not know. There were a lot of things he did not know, however, so he continued to play.

Fred Stevens was standing spell-bound. He could hardly believe his eyes, even though it was the thing he had hoped to accomplish. He had never before seen so large a swarm of bees. The three hundred thousand circled above him in dizzy flight and obscured the sun. The vibrant roar

of their wings combined with the stirring strains of the march to fill the ravine with harmonious resonance. Thus far, he had succeeded.

The fever of Stevens' pulse died down somewhat as the swarm completed its clustering on a limb. He felt a sudden sharp kick on his leg. He turned to see Anderson still dutifully playing. His face was very red and it was plain that he was very nearly out of breath and would like to stop.

"Oh, all right!" Stevens laughed. "You can lay off now."

Anderson regained his breath with great relief. Then he asked:

"Why did you want me to play?"

"Bees have a sense of hearing," replied Stevens. "I wanted them to get the association between their swarming out as they did and your music. We want them to come out *en masse* on a later date, and when that time comes, I want you to play the same piece again with all your might and main."

"O.K., brother. Anything you say. Now what?"

"I am tickled to death. I had lots rather have them cluster as they have, than to have had them fly directly into the hive. We are going to cut that limb and hang it on the inside of the truck. If they want to leave it and go in the hive during the trip, that is their pleasure. I want to leave here with them in a cluster in the truck. Now, if you will help me a little, we will cut that limb and—"

Sudden panic struck Anderson. The idea of close proximity to *that* many bees was not so pleasant. Even though he had been close to these bees before without being stung, he could not forget that these bees had stingers, and that there were lots of them.

"Never mind," he interrupted. "You do it."

Stevens laughed. He had seen many men before afraid of bees. In view of the weight of the cluster*, however, he really needed help, for he wished to cut the limb and transfer it to the truck without disturbing the bees any more than possible. A sudden jerk would dislodge many bees and dump them on the ground and he wished to avoid that. There was a short, good-natured argument with Anderson before the latter was convinced. Twenty minutes later Greta and her bees were on their way to a destination unknown to themselves.

CHAPTER XI

THE SUPREME STRUGGLE

G RETA had not been established in her new home on a stationary location a week, before she was fully prepared. The empty combs had been filled with eggs and young larvae, she having detailed the half dozen young queens she had brought with her to fill them up. Here and there a peanut-shaped cell of wax was taking form as she prepared for her successor in this location. She reasoned that she might not return from this expedition.

That there was to be another expedition she was fully confident. Her returning field bees told her that there were virtually no flowers to be found, and that they were again at the scene of war. Yet the food supply was ample. Another trough filled with the never failing supply of syrup had been set up outside, and every day Fred Stevens had replenished their

*Three hundred thousand worker bees would weigh about 60 pounds at approximately 5,000 to the pound.

supply of natural food as stored in combs by bees in the far corners of the nation. It was totally without fear that he had lifted the cover of the hive and gently examined the frames. After these examinations, he had considerably stacked additional hives-bodies filled with stored food on top of the colony until it was attaining a dangerous height.

Then the day came. Greta heard the strains of the harmonica she had heard once before, even through the wall of the hive. On the instant, her reason told her that her men friends wanted to see her, and that in all probability now was the time for battle. She led her expedition forth. It was 250,000 strong. She left 50,000 bees at home to take care of the new city.

The same truck was standing outside. Fred Stevens was standing by one of the open rear doors. His eyes were wide with anxiety for fear that the bees might not understand. Anderson was standing by the other rear door. He was playing "The Parade of the Wooden Soldiers" with all the force of his lungs. His eyes were strained with a somewhat different kind of anxiety.

Greta was intelligent. She had been in that truck before and had been taken places. She could hear the sound of a mighty barrage and she knew that the battle of the men was beginning. She did not know exactly where it was. The men that drove the truck knew. She led her swarm into the truck. The doors slammed shut. Stevens and Anderson jumped into the driver's cab and started. There came the roar of a powerful motor and they were off.

"Thank God!" breathed Stevens.

"I don't know about that," murmured Anderson.

"What do you mean?" asked Stevens.

"I mean that you have gotten me to where I think a lot of these bees myself. Now you are taking them out to their destruction."

"Think we ought not to do it?" asked Stevens, quickly.

"I don't know. It is either that or else—"

"Yes, or else. If they did not help us, we would lose, and then the battle would go back to their pastures."

"Anyhow, we are into it now."

The truck was stopped just behind the front lines. Another crucial moment had arrived. Stevens swung open the doors of the truck and gesticulated wildly. Anderson was about to reach for his harmonica when he decided that it was unnecessary. The bees were out and circling upward. The two men watched them anxiously. They were thinning out and dividing into small groups.

The two men revisited the trucks and obtained their arms. Once more Stevens was laden with a machine gun and once more Anderson was weighted with ammunition. Their faces were strained. They started southward as a matter of suggestion and as a matter of duty. When they had advanced a hundred yards they were pleased to see that the bees had followed. More than that, they had completed their formation and had passed them on their southward flight.

The two men passed a communications outpost. Stevens flashed a special card on the operator and asked him to deliver a message. He directed it to General McKelvey. It read: "The war is on according to Hoyle. Rely on your allies." He signed it "Sgt. Stevens, Hero." A faint smile crossed his face as he signed it.

GRETA began her attack very much as she had her first, but the sudden, sweeping victory was not forthcoming. In the first case the surprise element played a very important part. Now there was also a certain degree of surprise, but it was not nearly so effective. The Asiatic generals had, like the Washington authorities, found it difficult to believe that bees had played any very important rôle in the defeat that they had suffered, and they had refused to make any serious effort to safeguard against a repetition of the same attack. They did not believe that the bees would journey across the 25 mile salient to repeat the attack. Regardless of what the generals thought, however, the soldiers were again contesting their position against an attack, which was led by the ferocious insects. It was now the immediate problem for the soldiers to solve the best way they might. They fought the insects vigorously, swatting and slapping with their hands. The soldiers in the trenches had not in the least expected the bees, but now that they were present to be contended with, their morale was not so suddenly and completely ruined. Many of them thought of donning their gas masks and passed the suggestion along. This proved to be the biggest handicap that Greta faced.

Greta observed that the battle was not going immediately in her favor and was gravely concerned. That many of her bees were being killed, she knew, and she did not know how long she could maintain the attack without victory. She called off the attack momentarily by signalling for her entire army to rise above the scene of conflict. She held a hurried conference with her leaders.

Down below, and ahead of the enemy lines, the Americans were held in

check. They had advanced to a point where they could go no further until the resistance lessened. The ceaseless deadly spray of machine gun bullets could not be faced. Thousands of the Americans had been killed and wounded, and those that remained were awaiting developments in the best positions that they could find. The shell-holes were crowded with men who were quite willing to fight, but who saw no point to ending the possibility of ever fighting again by exposing themselves to that devastating spray. Even so, they had advanced farther than they had expected. When it became generally known that the bees were again in the fight, they were somewhat at a loss. It was evident that the bees had accomplished some good, but they had not performed as effectively as before. They observed the bees rise above the fight in dismay. At the same time, they realized that the vigor of the defense increased. More machine guns were in deadly action.

Greta's instructions to her generals had been short and snappy. The attack was to be changed to a different method. She had argued that if single groups of fifty bees could not immediately accomplish results, it was worth risking a new method in order to get results. The point being to sting the men unmercifully, she believed she could get better results in mass attack now that the resistance was increased. Her long line of fighters converged into one great expanded ball of flying bees high above the center of the fight. Then they descended together at the greatest possible speed. As they reached the scene of activity, the ball divided, one half flying along the line eastward, and one half flying along the line westward. Greta led the westward division.

Every yellow man that was seen was subjected to a sudden and terrible attack by the whole group. Each individual bee flew to the attack swift as an arrow, and darted away again. When multiplied by the tens of thousands, the effect was devastating.

THE most vulnerable point of the masked men proved to be their hands, and Greta soon realized that fact. While many bees had managed to penetrate the men's clothing and deal them misery there, most such bees were killed by a vicious swat of a heavy hand. These stings were helpful in accomplishing results, but they were at too great an expense. She directed that the principal objective be the hands, and she found this attack to be quite effective. No man could slap at 100,000 bees at once, particularly while each and every one of them were in the swiftest possible flight. When a man was attacked it was but an instant before he had suffered from 500 to 1,000 stings on the hands. Such a man was immediately rendered ineffective. Many of them died within the hour. Machine-gun after machine-gun was silenced in an ever widening sector. No man could operate a machine-gun while dying, much less with hands swollen as large as toy balloons. The Americans began to advance toward this ever widening sector.

Greta had progressed down the line a mile when she paused to reconnoitre. With fully a quarter of her force killed, she had no desire to continue the attack any longer than necessary. She observed that the Americans were advancing, but that they were seriously handicapped by a few machine-gun nests that had, somehow, managed to get back into action. She ordered her forces back over the path they had

come. These nests must be wiped out.

In the midst of her renewed attack on one such nest, Greta almost met with sudden and complete defeat. The men were prepared for gas with their masks, but Greta was not. It swirled down upon them from the first gas that was released. Half of her remaining force died on the instant. Those just above the swirling vapors at the moment observed their ruinous effect and were quick to heed Greta's warning to rise. Here they paused until the greenish vapor rolled on under the urge of a gentle southerly breeze. She repeated her attack and silenced the gun, but with the realization that from henceforth she must act with caution, ever alert for the first sign of the green vapor.

Greta had reached the point of beginning, when she observed the reason for the renewed activity in that portion of the enemy's lines she had considered conquered. She discovered a trench leading up from the rear through which was pouring a steady stream of reinforcements. She dispatched messengers at once to the half of her army that had flown eastward. They were to return at once and join in the attack on the reinforcements. Having crippled a considerable portion of the enemy lines, it was now her point to give her friends a chance to take the position while she prevented reinforcements from arriving. Grim and determined, she led the attack down the connecting trench.

She found it necessary to redouble the fury of her attack. It seemed that there was a never ending supply of men advancing from the rear. Gradually, however, she began to show telling results. The head of the line was stopped. Men lay dying in the trenches, impeding the progress of others. Those behind dared not get out of the

trench to go forward, for to have done so would have been to expose themselves to sudden death from the bullets of the Americans. The Americans were drawing ever nearer. Furthermore, those behind were not so sure that they wanted to advance. They began to retreat.

IT was two hours later that Greta found herself deep in enemy territory with her American friends close behind. The never ending roar of the American barrage had kept up steadily, and the rain of bursting shells was just ahead, its progress closely timed by the artillerymen well informed of the progress of the drive. The resistance of the yellow men was less now than it had ever been, but the frequency of the bursts of the greenish vapor was now greater than ever before. Greta had become more wary of the gas, and it was well that she did. She had divided her combined forces into four groups, and two of these groups had been completely wiped out by the gas. The remaining two had become so weakened from casualties that it became necessary to recombine them for effectiveness. Greta was now left with a scant 40,000 bees out of a total of 250,000 that had begun operations that morning. She could not continue much longer. The bees that were left were beginning to show the effect of the continuous fighting. They were very tired, and their own morale was getting very low. Another half hour of the fight, or one unfortunate connection with a cloud of the green gas, and it appeared that there would be no more bees. Greta did not have the heart to send the remainder to their destruction. She felt that she had done the best that she could and that it was up to the white men to make the most of their gains

for the day, until she could rebuild her forces at her new home. She signalled her bees to rise into the air above the fight for the homeward flight.

Just before Greta gave the order to return to their man made city, however, she received some interesting news. A scout returned to the group to report that a short distance behind the lines there were a number of men in a house concealed by trees, and that the place was a scene of tremendous activity. The men wore no masks, and there was a distinct freedom from the gas in that zone. The point seemed to be a place of considerable importance, the scout thought. Actually, it was emergency headquarters for the Asiatic chief of staff and his assistants. They had been blasted out of a location nearer the original scene of activity by the artillery fire of the Americans.

Greta considered the problem. They had helped the Americans considerably in advancing a full two miles. The advance had not been so rapid, however, as it had been the first time that she had engaged in the war. She wanted to see the yellow men driven completely away, and they had not been. The resistance had been tremendous. She was injured, having lost two legs in one of the encounters, and many of the survivors of her army were likewise injured. She flew with pain and effort. Still, here was a chance for an easy victory against unprotected men, and if the scout was right in thinking the place was a point of importance, the attack might be well worth the while. She consulted her leaders. One of them suggested that one easy victory would be a pleasant way to finish off a day of killing effort, after which they would return to their home. Tired as they were, the majority was still willing to

engage in one more encounter. They followed the lead of the scout.

Greta observed that the windows at the house were all open. The one room having the most windows was crowded with men and desks and telephones. A steady stream of messengers was going in and coming out of this room. Greta decided on one swift attack intended to wipe out every man in that room and then retreat. She gave the order for every bee to charge that room through the windows at the given signal, stay on the job until every man was dying, and then leave as quickly as possible.

The dismay in the room was tremendous, and the anger of the tempestuous and brutal war-lords matched their dismay. Faring badly in the defense of their most important position, the Commander-in-Chief was not pleased to be beset by the cause of his previous defeat, a cause that he had refused to believe. He fought vigorously with his hands. In that dense cloud of flying demons he could not miss every bee, and his flailing arms caught many of them and sent them sailing to their death in impact against the wall. A second later his eyes were closing as the result of a hundred swiftly administered stings. Five seconds later he had absorbed 500 stings. Through eyes that were now almost closed, he saw a fly swatter nearby, and his fingers closed upon it just as the last of his vision was gone. He fanned it vigorously through the air. The bees avoided it as much as possible but in their dense mass in the close quarters, a hundred of them met death on each swing. Ten seconds later he had absorbed a thousand stings and was swinging much less vigorously. Thirty seconds later he lay on the floor, dying. His eyes could not see that every other man that had

been in the room at the instant of attack also lay dying.

It was when the bees had flown out of the room that they learned that Greta was no longer with them. She lay stunned on the ground outside and seriously injured. In the attack which she herself had led against the Commander-in-Chief she had been caught by a blow of the wildly swinging fly swatter. It had grazed her body and carried away one wing entirely. The impact had sailed her body out of an open window, and she lay helpless and unconscious on the grass.

Greta's army refused to depart until the fate of their queen had been determined. They hovered about while numerous scouting bees searched for her. At length they found her and rejoiced that she was still alive. Two that remained the most physically fit were assigned the duty of transporting her home. One grasped the good wing with her mandibles, and the other grasped the stump of the other wing in like manner. With great effort, they lifted her up and flew away. In the end, they reached their home.

IF Greta could have known it, she would have considered that her last attack was well worth the sacrifice. The wiping out of the headquarters staff of the Asiatics was the final blow that definitely led to a sweeping victory for the Americans. Without direction, the Asiatics had faltered. There had been no lesser generals capable of taking the place of the genius and his assistants that had been killed. It was two hours before a lesser war-lord even tried, and he made a miserable failure of it. No part of the defense knew what was happening to any other part of it. Reinforcements were not sent to points where they were needed most, and sec-

tors of the defense were not supplied with additional ammunition which they sorely needed. They fell back more and more rapidly. The line was pierced, the morale of both soldiers and leaders in the Asiatic army failed, and the Americans marched on. Two weeks later the war was over.

CHAPTER XII

THE LIVING MONUMENT

GRETA returned to consciousness in her artificial home.

The pain in her body was so great that for three days she was scarcely able to think. She could only rest the easiest way she could and make the best of it. At the end of that time, however, what was left of her body began to heal in its dismembered state, and she began to think of the future. That she could lead no more battles was a fact plainly evident. She was not sure that she was willing to send her bees out to battle again even without her. The reports were that there was no more war in their immediate vicinity, and she rejoiced in the news. She hoped that her white-men friends had finished it once and for all. She began to think of ways to return to Cavoon.

A week later Greta became concerned for her particular friend, Stevens. Before the recent drive, he had made it a point to examine the colony daily to determine its needs in the way of food. The food in the trough remained constant, but there was no sign of Stevens.

Two weeks later Greta had determined that it was impractical for her to ever return to Cavoon. The long flight would be arduous enough even if she had been physically perfect, but to expect her workers to carry her

that far was out of the question. Much as she hated to forsake forever the city she had loved, she finally became consoled in the thought that here, among the kindly white men, she would build a city just as great as Cavoon. If only Stevens would show up again, she would be more content.

It was the next day after Greta reached that decision that two men approached the hive quite slowly and with serious mien. One showed only the merest trace of a vanishing timidity, while the other was considerably more cautious. The first was Martin Anderson. The second was General McKelvey.

"Do you think you can do it?" asked the General.

"I don't know," returned the other. "But I can try."

Anderson held out his hand. He stood close to the entrance of the hive, and held his hand in such a way that the stream of bees going in and out of the hive could not fail to notice it. He prepared to remain that way indefinitely.

Speaking softly, he said:

"I would rather have had it happen to me."

"So would I," returned McKelvey. "To think that Stevens, the saviour of the American nation, should be lying in a hospital, gassed, and with his body perforated! The man had dreams. He had an indescribable understanding of living things and a God-given sympathy for them that enabled him to do what he did. If he could be granted a natural span of life there is no telling just how much he could accomplish. It is not right, Anderson."

Anderson said:

"If only we can succeed in this effort and carry the word to him before

he does die that his 'little lady' still lives, I will always consider that I have been extremely honored by doing him a service."

"So will I. And I shall do him still one more service. This contact with the bees is giving me an idea. But look! What is that crippled bee down there on the entrance board? She is acting funny."

Anderson had not been watching the entrance. He had been watching his hand. He bent over quickly for a close look at the bee in question. As he surveyed her crippled form more closely, his eyes lighted with both hope and dismay. Slowly, he placed a finger on the alighting board. Greta, using her four remaining legs, crawled upon his finger without hesitation.

Anderson stood up and held Greta up for the General's inspection.

"Look at her!" he cried. "There is Stevens' 'little lady.' And if she hasn't paid a bitter price for her part in the war! See how she is crippled," he said, and his tone was bitter.

"Are you sure that she is the right one?" asked McKelvey.

"I know it. I recognize certain markings," said Anderson.

"All right," snapped McKelvey. "Put her down and let's get going. I'd give my right arm to get news to Stevens that she still lives before he dies. Take a motorcycle and burn up the road. I'll follow in my car. If you don't get there in thirty minutes, I'll break your damn neck."

McKelvey formulated his plan as he drove over the military road to the hospital. He arrived just in time to outline it to Stevens before the latter passed from the land of the living. The last words that Stevens ever uttered were:

"Nothing would suit me better,

General." With that, he died, a smile on his lips.

Thuros did not understand the reported activity of the men just outside of Cavoön. She flew out at intervals to investigate it herself.

It was days before the work was completed, but during those days the bees of Cavoön held their peace. There was something sober in the bearing of the men that quieted all antagonism. Even the slight jar that was transmitted to the combs of Cavoön through the measured blasting of the men did not arouse their anger. They did not understand, but they did not fear. The grave was dug in peace on the bank of the ravine, not quite over the entrance to Cavoön. After the casket had been lowered with due ceremony and the grave filled, the work continued unabated. Slowly, an imposing monument of marble was assembled. Thuros observed that it was hollow, and the thought occurred to her that it would possibly contain as much room as the cave in which was housed the city of Cavoön. It was a definite shock of surprise, however, when she saw frames of comb with adhering bees being transferred ever so carefully into the hollow monument by Martin Anderson's trembling hands.

Thuros was not so sure that she approved of this. It was true that their pastures were improving, but this city was going to be very close. She flew closer. She circled the man with the combs and inspected the bees that clung to the combs, unafraid. She spied a crippled form that was a queen bee.

"Greta!" she called.

"Thuros!"

Thuros came to rest upon the comb bearing Greta. Thuros was still listening to the chronicle of events as related by Greta when the last of the

combs had been transferred and the monument had been closed with a thick marble slab.

"Then you think the war is over?" asked Thuros.

"I am certain of it. It was certainly over in our vicinity, and why else should the men bring us home?"

"You must be right," returned Thuros. "But do you have any idea why they have set you up a city in stone instead of returning you to your natural home?"

"I wish I knew," Greta said.

If the bees could have read, they could have learned. Just over the entrance to this hollow monument there was this inscription:

FRED STEVENS, SEVENTH

May his body rest in peace beneath this stone. We are not sure but that his soul, in part, lives on eternally in the intelligence of these, the bees he loved.

McKelvey and Anderson were the last to leave the scene. They drove for a while in silence. McKelvey was the first to speak. He said:

"Are you quite sure that you are

willing to renounce your profession and take over this job?"

"I certainly am. To be the Superintendent of the new *Apis Mellifica* National Park is the greatest honor this country can bestow upon me."

"At that, it will be quite a job to keep these thousands of acres in a state of perpetual bloom the country wants."

"It will be a job more to my liking than anything I ever had," said Anderson. "Inside of a year I shall have this place a paradise of flowers, and nectar-bearing flowers at that."

"All of it?" asked McKelvey.

"No, not all of it. I thought I would leave that area in the immediate vicinity of the monument in as nearly its natural state as possible."

McKelvey agreed.

"I think Stevens would have preferred it that way," he said.

The face of the polished marble monument caught the rays of the afternoon sun and reflected them in a long arc as time marched on. Here and there in their path the reflected rays enhanced the glory of soft creamy panicles. The sumacs were in bloom.

THE END



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Spawen of the Ray

By MAURICE DUCLOS

Some time in the past, we published one or two interesting stories on gigantic insects and the present story is more or less upon that line and we believe it will be as much appreciated as they were.

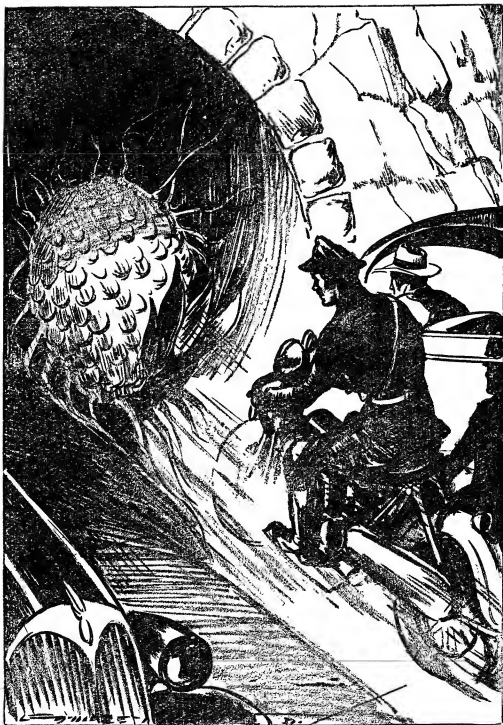
WHEN Benny Parker lurched into the Science Club lounge, coughing and talking to no one in particular, the members gaped in unbelieving amazement. For "Bunny," as everyone called him, was even more timid than his nickname implied—and that he should be slightly intoxicated was incredible beyond words. Two smirking individuals entered close behind him. Not fifteen minutes before, they had forcibly dragged Benny into a beer parlor for a drink. But the "beer" they fed him was in reality a potent ale. He had not known the difference until the world began to sway before his eyes and a vast, incredible courage suffused his being. Then he didn't care. At the present moment the two practical jokers were secretly convulsed with laughter as Benny treaded his way about the room, shaking hands and talking loudly to startled Club members.

As its name signifys, the Science Club was nothing more than a group of persons who had been brought together by their common interest in things of a scientific nature. A laboratory and complete research library were maintained at their clubhouse, which otherwise would have been far too expensive for one individual. It was open at most hours of the day or night, and was frequented

by its members when chance permitted. Regular monthly meetings were also held, and nothing less than a major catastrophe could stop the enthusiasts from attending. The present gathering was such a one, but of special interest was their guest of honor, the great Sir Hamilton Hodge. He had graciously consented to say a few words on evolution, a subject that had brought him world renown.

As is befitting so distinguished a personage, Sir Hodge was late. He arrived half an hour after the appointed time, effectively making the group realize his importance. There followed an introduction by the Club president, characterized by all the ceremony of a launching of some giant of the sea, while the members looked on with awe—except Benny Parker, who was in condition to greet him with shouts and much clapping.

For another half hour the famed scientist lectured on evolution, while his entranced listeners drank in every word. He concluded impressively, as though he might have said the same thing many times before: "And so, my friends, we find that mutation in all manner of life is caused by several things. First; survival of the fittest. Second; by inheritance of favorable characteristics. Third . . ."



A giant flagellate, six feet high it stood, with its leaf-tail closed in a backward position.

At this moment Benny's voice rose from the back of the room. "Hey, Prof! Don't forget rays—they cause evolution, you know."

The great man allowed his eyes to rest upon the small individual who was swaying on his feet like a tree in a storm. A slight frown of annoyance crossed his brow. "Rays cause evolution?"

"Sure," said Benny. "Cosmic rays, or some invisible radiation from the sun, make things evolve!"

Sir Hodge concealed his irritation. He forced his voice to boom out in hearty laughter. The others in the room were quick to follow suit—though each wondered vaguely what the joke might be. "You have been misinformed, my good man. Rays have nothing to do with evolution. I have just explained why organisms evolve."

But Benny was persistent. "I heard of an experiment where flies were caused to change form in several generations by subjecting them to cathode rays! Isn't that evolution?"

Sir Hodge was angered. Heretofore his theories had been accepted as fact. Now a small town amateur scientist was doubting his word. "I see you don't realize who I am!" he said haughtily.

"Oh, yes I do," replied Benny. "You are Sir Hamilton Hodge, the greatest authority on evolution since Darwin's time. Someone has said you're even greater than Darwin—in fact—I believe you said that yourself!"

For a long moment breathless surprise filled the room. Then a snicker sounded amongst the gathering. Sir Hodge's cheeks slowly turned red. "Never"—he spluttered—"never have I been so insulted!" So saying, he turned on his heel and marched from the room.

AFTER that fatal evening Benny Parker rarely dared venture to the Science Club. Whether early in the morning or late at night, there was sure to be someone puttering about in the laboratory or library who would immediately start to joke about "rays" and "evolution." Once he had raised sufficient courage to say that at least cathode rays caused evolution. But only roars of laughter greeted him.

Finally he decided that something should be done about the matter. He would prove his point! If scientists could cause organisms to change, he could do it too! Then all this laughing and joking would have to stop. Immediately he sent a special delivery letter to a large scientific apparatus company in Los Angeles.

One evening when he returned from work he found a package on his door step. It contained the vacuum tube and transformer he had ordered. They were not large, as the standards of such equipment, but nevertheless had neatly deflated his bank account. The vacuum tube had been made to his own design, so he told himself that the exorbitant price was justified. Its special feature was an aluminum "window" that allowed the rays to escape beyond the glass walls. This "window" was strong enough to resist the vacuum, yet numberless minute spots upon it were only .0002 of an inch in diameter, through which the rays passed without hindrance.

Like an eager child Benny hurriedly brought the apparatus into the front room and there connected it for use. Then he began to speculate on what manner of creature would be best to experiment with.

Of all the vast subject of biology there were few things that interested Benny Parker more than FLAGEL-

LATA, a microscopic cell that forms green scum in stagnant ponds. It can be classified as neither plant nor animal, for it has characteristics of both. Like a plant it contains chlorophyll, which enables it to manufacture its own food by photosynthesis. Animal-like, it has delicate appendages whose incessant whipping of the water carry it rapidly along. Or, animal-fashion, it may absorb organic food substances through its cell body.

Having some of this green scum in the kitchen where he had been observing it with a microscope, Benny decided that it would be his first subject. He placed a small quantity beneath the "window" of his tube.

BUT sometime during the following hour the flagellate cells failed to survive. Under the microscope he saw that the now motionless organisms had grown enormously. But at the same time their appearance was one of dryness—despite the fact that they were still in water. Their green had faded to a pale transparent hue.

He was in high spirits. The cells had perished, of course, but what did that matter if at the same time they had enlarged? It was quite obvious that the trouble was over-exposure to the rays.

The next batch was left beneath the tube only a few minutes. After an hour interval the process was repeated. Through the lens it was plain to see that they had grown larger than ordinary flagellates. Benny was elated beyond words. He did not know what the outcome of this experiment would be, but he could well imagine the surprise and praise with which the Club would greet him if something noteworthy resulted.

In order that the process might re-

ceive no interruption, he attached an automatic, timing device so that the tube would function during the night and while he was at work. The tiny organisms continued to grow!

At this time individual flagellate cells had reached the size of a quarter inch in diameter. It had become necessary to leave only about a score of them in the wide-mouthed jar. Benny found them consuming more and more food as they grew. He also discovered that the length of time-exposure to the rays was proportionate to their size—the duration increasing with growth.

Even with the unaided eye, infinitely fine thread-like tentacles were visible radiating from the green bodies. But through the microscope the body was transformed into a vast bag of numberless translucent cells. The tiny tentacles were large ropes that propelled it smoothly through the water. Wonder of wonders! Not only had they increased vastly in size, but they had also evolved! It was this evolution—the massing of cells together—that had actually made them grow. From simple organisms he had created complex, specialized creatures!

When they were an inch in diameter Benny decided to take them to the Science Club. He smiled as he thought of the amazement they would cause. Then he could laugh at the whole Club—make them eat their words! He put the things into a large fruit jar and started to leave. But then he began to grow doubtful. What if the Club members didn't believe him? They might think he had caught a few jelly-fish or obscure sea organisms. No, that would never do. He must continue the experiment until he had produced something the likes of which had never before been seen. He replaced the things in their container, inwardly

cursing himself for lacking nerve.

So far during the experiment none of the flagellates had multiplied. He removed one to let it live its natural life. It continued to grow till about once again its former size. He waited impatiently to see what would happen. Then one morning he found that it had divided into two living, moving entities. He was somewhat disappointed, for innumerable minute organisms reproduce in exactly the same manner. He destroyed it.

As the space in the jar beneath the vacuum tube became crowded by the flagellates' growth, he removed them one by one. Finally only a single survivor of the original flagellates was left. When it had grown to a foot and a half in diameter it was a yellow-green thing with strange little leaf-like projections at one end. Only a few tentacles remained, these being arranged in a horizontal plane around its body. Stranger still, it was showing a tendency to leave the water!

Once, when he returned from work, it was actually out of its jar and lying on the dining-room table where he kept the tube and equipment. A sudden fear assailed him that it might be dead. But as he reached to pick it up it made an abrupt move as if to avoid him. When he put it back into the water it clung stubbornly to his hand with strong tentacles.

"Well! I see where we'll have to make something to put you in!" Benny informed the creature. "Might fall off the table and hurt yourself!"

Thereafter he kept it in a cage covered with window screen. The thing had undergone an amazing metamorphose. It had acquired a fan-like tail of green appendage that looked for all the world like ordinary leaves. Its body was the shape and color of a

pine-cone, but of a size slightly over two feet in length. At the smaller end was an organ of three pedal-like membranes which were capable of being opened or closed. Benny knew it was a mouth, for lately the creature had consumed more and more particles of food through this aperture than it had by absorbing them with its body cells, as it had done since its original microscopic size.

AS an experiment he threw a fly into the water in which the thing was half submerged. Immediately the flower-like mouth opened and the insect disappeared within.

"So! You're demonstrating another animal characteristic!" cried Benny in delight. Then a fantastic idea came to him. The monstrosity was as much plant as animal—what then, would be its reaction if some earth were placed near it?

He dared not put the dirt into the water with the thing for fear it might be harmful. Therefore he scattered some on the cage floor near the base of the crock. Almost immediately it came out, moving easily on its six tentacles and looking at first glance like a monstrous spider.

Breathlessly Benny watched it. He had not definitely determined whether it possessed sight or not, but there were several round areas above its mouth that were composed of a red pigment which, he reasoned, might be sensitive to light. It walked surely to the earth. Then Benny was treated to an astonishing sight—a creature eating common soil—and consuming it as if starved!

"Gosh . . . that's incredible!" gasped Benny, trembling with excitement. Still, what was so incredible about it? The thing was part plant, and like a plant it must get certain

elements from the earth for body-building.

After that it never went into the water again. It seemed to derive all necessary moisture and minerals from the earth that Benny fed it each day. Also included in its diet were great numbers of flies, grasshoppers, and even chunks of raw meat, which it seemed to devour with great relish. One peculiarity that Benny noticed with interest was its habit of coughing up the undigestible remains of food it had eaten. This seemed its natural means of elimination, for both earth and meat alike were coughed up after as much nourishment as possible had been taken from them.

Its fare of soil seemed suited to it, for it grew by leaps and bounds. Benny imagined he could almost see it enlarge. Four feet high it stood on its great three-inch thick tentacles. Its large fan-tail of giant leaf-like projections actually touched the top of the cage.

He had long since ceased treating it with the rays. For one thing they could no longer reach all parts of its body simultaneously. Then too, he did not want the flagellate to get larger. As it was it consumed more and more meat, even though that was the smallest part of its diet.

ARISING one morning, Benny was surprised to see that his creature had shed its scale-like body covering. This made it look slightly thinner and he could not resist comparing it with a plucked chicken. However, he did not understand why this had taken place. The brown scales were strewn carelessly over the damp earth on the cage floor. He examined one. It was about an inch in diameter, roughly circular in form, and quite

flat. There were symmetrical shapes on it like infinitely fine carvings. He could make out six tentacles folded flat against a body, a tiny perfectly formed fan-tail on the other side. . . . in a flash he understood. The thing was a sort of seed, a miniature of its parent! All that was needed to bring it from its quiescent state was water!

Many a time he had taken a bean seed or ordinary peanut apart to examine the plumule—that little fish-shaped growth between the two halves. Well-defined stem and leaves, folded together in a dry little bundle form the plumule. Though inactive, hard, and apparently dead, he knew that the protoplasm of such a seed only awaits favorable conditions for growth to begin. And obviously it was in such a manner that the creature he had created reproduced itself. He estimated that altogether there were about a thousand of the seed-creatures—literally blanketing the wet earth.

Next day the miniature flagellates were beginning to show signs of awaking life. Their leaf-tails, folded over their bodies, were turning green and beginning to open out like the leaves of an emerging bean plant. Benny sprinkled water over them to hasten this process. Two days later the little creatures were crawling over each other like a swarm of spiders in search of food. Moisture taken from contact with the dirt had rounded out their bodies and unfolded their legs, bringing complete life and motion. Exact replicas of their parent they were, only vastly smaller. At first their movements were slow and feeble as an insect fresh from its chrysalis. But after an initial meal of sand their increase in strength left Benny fairly gasping. However, the

green of their tails was a sickly hue—pale like a plant deprived of sunlight. He knew that they must be put into the open. Sunlight is indispensable for the manufacture of starch in plant life.

Early one April morning he decided to let the little creatures bask in the warm sunshine. As he had not yet changed their quarters, he took cage and all and placed it on the back porch where the rays of sunlight fell squarely upon it.

For a moment he lingered to enjoy the beautiful morning. Spring was in the air and vegetation was at the height of its luxuriant growth. Insects droned and buzzed in the underbrush or scuttled over the warm surface of the driveway. The flagellates seemed to be affected also, for their movements quickened and their leaf-tails slowly opened to receive the fullest amount of sunlight.

Reluctantly Benny entered the house. He'd have to shave quickly this morning or be late to work again. As he lathered his face his movements became almost automatic. His mind was industriously forming pictures of a world left gasping by the miracle of his creation. Of course the idea of evolving different species by rays was not exactly new. One eastern university had created a new plant by the application of X-rays to an ordinary garden growth. But the experiment seemed not to have been carried so far or in just the same manner; nor had ever such results been obtained! An organism that was both animal and plant! The scientific world would be overcome with amazement. Then he would receive offers to join great laboratories and universities at fabulous pay! Riches! Fame!

Benny was interrupted in the midst of his pleasant vision by the neigh-

bor's dog, which was barking under the very window near which he stood.

"Confound it!" he muttered. "Why can't people keep their yapping mutts home?" And then, because he was a timid soul, he wished somebody would ask them to keep it quiet.

Abruptly there was a resounding crash in the backyard. The barking rose to a furious pitch. Benny stood as if frozen, with razor held in mid-air. It had been a sound like something tumbling downstairs—all the color vanished from his face. The cage of flagellates! He had forgotten about them! No wonder the dog was barking!

But when he reached the back porch it was too late. The cage was at the bottom of the steps, its door open. The source of all the trouble, a large mongrel dog, was playfully snapping and yelping at the little flagellates as they emerged. Like a swarm of tarantulas they sped over the back lawn and into the surrounding shrubs and undergrowth. Not a one remained except the original specimen. It had grown far too large to escape through the little door.

Benny was in a panic. If he failed to catch everyone of them there was no telling what might happen. When full grown they were very powerful, and with their six legs should be able to travel faster than a race horse. As meat eaters they might attack little children—even grown-ups!

Benny ran his fingers through his hair, struck by another terrible thought. In two months the things would be full grown and produce a thousand offspring apiece.

"There'll be a total of a million the second month—in four months a

thousand million . . .” He could go no farther. For the first time the seriousness of the situation became apparent. In a short while the things would overrun the earth. It was simply a matter of mathematical progression with staggering figures—thousands, millions, billions—and the very earth under their feet as food! Of course many of the flagellates would meet death, but to counteract this was the fact that each would multiply many times in its life span. Benny’s fertile imagination pictured a world besieged with the things, death and destruction everywhere.

Forgetting time, work, everything except that he must catch the things, he began to tear up flowers and shrubs like a madman. Indeed, with the shaving cream still on his face, one could well imagine he was foaming at the mouth. Fortunately, none but his neighbor was witness to his actions. When she saw him smeared with soap, and down on his hands and knees in the weeds hitting around wildly with a board, she thought nothing of it. He was more than a little eccentric in her opinion—today’s actions only proved it.

By noon Benny gave up in despair. He had caught only fifty-seven of them, and these by smashing with a club as they darted out of the weeds when moved about. The rest might be blocks away for all he knew. They could dash over the ground with amazing rapidity.

For the rest of the day he was too sick with despair to go to work. He could only curse his misfortune and think of how many future tragedies might be directly traceable to his carelessness. In a sudden fit of rage he dashed the expensive vacuum tube to the floor; then immediately regretted his actions.

PAINFULLY a month and a half dragged by. Benny was thin from worry and lack of sleep. The flagellates would be nearly full grown now. His tension increased each day as he scanned the papers for news of the things. Probably they would be brought to public attention by some horrible killing.

He still had the first flagellate—and in such a massive cage that he could barely move it. He did not know what to do with the creature; its purpose was gone now. He dared not show it to anyone or tell of his experiment. To make matters worse, brown scale-seeds were growing on its body again. It would soon multiply!

But before the recent catastrophe could repeat itself Benny determined to do away with the thing—destroy it! Besides, its appetite for large quantities of meat was expensive to satisfy. So that very evening he unpacked his large caliber pistol, and after working up sufficient courage, shot the flagellate. But to his dismay the thing didn’t die—in fact it didn’t even seem to know that there was a neat hole entirely through its body. A little green liquid oozed from the wound but that was all. He tried another shot—with like results. Then another and another. One leg was completely blown off but still it showed no signs of death. In desperation he took a large butcher knife and literally hacked the strange creature to bits. He might have been cutting butter, for its body was nothing but plant-like cells and there were no bones in it at all. Then, and only then, was it really dead. Benny slept very little that night.

Next day his fears were realized. A small news item in the morning paper, written in a jocular manner,

caused his anxiety. A ferocious six-legged creature had been seen in the northern section of Los Angeles by several school children. It was said to be about five feet tall, with a leg span greater than that of a large octopus. The frightened tots had all escaped safely.

"Gosh!" groaned Benny. "Clear up in L.A.! That's a long way from here. The things must be distributed over an area of thousands of square miles already!"

The following morning's paper brought even worse news. Several of the things had been seen near densely populated districts by grown-ups. This time the article was written in a more serious vein.

Two days later the flagellates were creating front page news. They had been seen on dozens of occasions, both near and afar, and their very appearance terrorized whole towns. Several times traffic on the main highways had been disrupted at sight of them; deaths resulted in the ensuing wrecks. Although no actual attack had been reported, police were ordered to patrol all roads and to shoot the things on sight.

Scientific interest was also being aroused. The Smithsonian Institution, National Geographic Society, and a northern college, were sending some of the country's most eminent biologists to capture and study one of the "freaks of nature."

Benny quit his job. The swiftly increasing number of flagellates seen, and the State-wide alarm caused, was too much for him. He wouldn't be around when the things got beyond control. They multiplied so fast, and because bullets would hardly affect them, an army would be next to useless as means of protection. His fertile imagination was assisted by nu-

merous stories he had read about man-made entities overrunning the earth. As for warning people—that would be quite useless—at least it had been in stories.

It took little time to load his car with provisions and a few necessities, and to leave his house just as it stood took even less. The rent would be due in a few days so he didn't care. He flashed past the Club without giving it a glance and was soon on the open highway.

Then a vast curiosity began to assail him. It wouldn't take much longer, he told himself, to drive through Los Angeles on the way to his hide-out. Then perhaps he could see for himself how the terrorized section was faring, or whether the papers had exaggerated things. He wouldn't admit to himself that he wanted a last look at a flagellate before he went to the mountains—but that was why he took the longer route. The distance to the big city was really many miles out of his way, but once his mind was made up it worked with a singleness of purpose that was amazing for one so timid.

He avoided the downtown section as much as possible, for it was obvious that no flagellates would be found there. The hilly northern residential district was where he turned. His way led through Elysian Park and the famed Figueroa St. tunnel—a tube in three sections running under a series of ridges in the park at a distance of several hundred feet apart.

As he drove through the first tunnel, a motorcycle policeman drew up beside him. For a moment he thought he had violated some traffic rule, but the officer's first words were reassuring.

"Hey, buddie!" he shouted above the roar of traffic. "Did you see it?"

"See what?" Benny managed to yell back.

"Why, that six-legged freak, of course!"

"Oh," said Benny. A sudden comprehending illumination flooded his brain. But before he could answer, a dark something whisked past them as they neared the end of the tunnel. Into the bright sunshine it dashed, and he groaned aloud. A giant flagellate! Six feet high it stood, with its leaf-tail closed in a backward position. It was flashing along at a terrific rate, its legs a blur of motion.

The onrushing stream of automobiles, emerging from the second tunnel, underwent a sudden convulsion as their drivers spied the approaching monster. The foremost skidded desperately curbsward, over which it bounced and thence into the concrete guard wall. The next car collided with the protruding back of the first, and a second later a dozen speeding vehicles had piled up in a terrible wreckage. In a flash the flagellate was past them and into the tunnel.

The motorcycle officer had dropped behind; but Benny continued into the second tunnel before his startled wits could function. Quickly he drove toward the curb, with a vague intention of assisting the stricken motorists. But before he could stop a siren sounded behind him and a police car roared by, guns flaming and reverberating through the tube like ten cannons. He almost ran upon the sidewalk in his endeavor to get out of the way.

Swiftly the patrol car covered the remaining distance in the tunnel, crossed the short intervening space, and melted into the gloom of the third

tunnel, hot on the trail of the lone flagellate.

Benny was trembling visibly and a cold sweat covered his brow. Accounts in the papers certainly hadn't been exaggerated! He drove hurriedly on. The place was getting too hot for him! He eased his conscience by telling himself that other people would stop to help the injured.

The third tunnel was nearly blocked with stalled and smashed autos. There seemed to be no casualties, for apparently uninjured people were climbing from their demolished vehicles as he went past. Of sign of the flagellate or police car there was none.

A minute later when he emerged upon the open street it seemed that the whole city had been aroused. Near and far in various directions sirens wailed dismally, drawing nearer. He supposed they were ambulances or squads of radio cars coming to aid in the chase. The ordinarily fast city traffic was going twice as fast; motorcycle officers were everywhere, paying no attention to recklessness, and police cars fairly bristling with guns and men were rushing past with sirens screaming.

At last Benny reached the open country. He breathed a sigh of relief. The city had been like a disturbed ant-hill — utter confusion, chaos. He could vision the whole country—the world, in complete disorder! An earth overrun by a fearful creature that multiplied with incredible quickness and in staggering numbers! Death everywhere; the human race fighting for its very existence!

WEEKS crawled slowly by. Over four months had passed since Benny made his precipitate exit from civilization. He had gone immediate

ly to an isolated cabin high in the San Gabriel Mountains. Because of its very remoteness he had seen few people, and these only in the distance.

Often he would venture a few miles from his dwelling to hunt rabbits. But most of the time he spent beside the fireplace, warming himself and thinking. He felt fairly secure in his hide-out. Extreme cold and snow would hold back the great mass of flagellates that were sure to come. But if he did chance upon one of the creatures he could defend himself with a large saber that he carried strapped to his waist. He had also grown to dread humans almost more than the flagellates—for at any day he expected a large influx of people to the mountains. Like refugees escaping from an overwhelming flood they would seek the higher portions of the earth—that would be man's last stand.

Benny was curious of what was happening in the great land below. He estimated that no less than a million million flagellates were about now, probably most of them in southern California. People wouldn't be able to step outside their homes without running into a dozen of the things. The whole army would be down there futilely shooting at them and doing more damage than good. A million million flagellates would need lots of meat to eat. . . .

At last Benny was forced to get in touch with civilization. His store of provisions was dangerously low and would need replenishing before the next snow-in. He had no intention of going without food for even one meal.

He made a list of supplies and drove sixty miles to the nearest store. As he half expected, there was no

sign of a flagellate along the way. Time would be needed for them to invade the vast stretches of mountain.

The store was located on the edge of the desert, far from the main highway and was used as an outfitting post by miners. The old fellow behind the counter seemed habitually silent, so Benny determined not to inquire about the flagellates unless the man mentioned them himself. He might think he was drunk or crazy, in case he had not heard of them yet. The fellow was eying him in a none too covertly manner as it was.

The order had been silently filled, but suddenly the old man caught Benny unawares.

"You out prospecting for gold, pardner?"

"Huh? . . . Oh, no! That is . . ." Benny thought fast. Obviously he couldn't tell the truth. "I mean, I'm hunting for silver too," he finished lamely.

The man eyed him suspiciously. "Then you better buy some cans o' this stuff to eat. Everybody gets it now-a-days—good to eat in place of bread."

The fellow was as nosey as an old woman, thought Benny, glancing hastily at a can the storekeeper held out for his inspection. There was a picture of a many-legged creature on the label.

"I don't like canned crab meat," he snapped. All he wanted was to collect his supplies and get back to his cabin as soon as possible.

"But this ain't crab meat!" explained the man. "It's the meat of a big, funny lookin' six-legged critter that. . . ."

Benny froze in his tracks. "What's that? An animal with six legs?"

"Yeah! Ain't you heard about it?"

Zagribud

By JOHN RUSSELL FEARN

We are sure that our readers have felt that the mysterious Jelfel was disposed of by the hero Lee, but from this installment they will find that he was as active as ever and that Lee had all he could do to cope with him as Jelfel, no matter what happened, seemed ever to be maliciously active and powerful.

What Has Gone Before:

In the preceding installment of this story, we were brought face to face with an extraordinary being, Elnek Jelfel, who is described as the Jovian wizard of science. He was so termed because his origin was associated with the great planet Jupiter. He had marvelous occult powers and a direct contest ensued between him and the terrestrial heroes of the story. Jelfel seems to constantly be winning a victory over the hero and the heroine of the story, but in some mysterious way, they always succeed in saving themselves. The present installment carries out the contests. The first installment gives us an idea of the occult powers of Jelfel and how he uses them upon the human beings who naturally are opposed to him. Different worlds appear in the story and the idea of Jelfel and his associates is to ultimately take possession of the earth and it really seems as if the resistance offered to him by the human beings who figure as the predominating figures of this story, are saving the world from a dreadful fate. The occult powers of Jelfel are made much of in the first installment and are carried through the rest of the narration.

PART II

CHAPTER V

ZAGRIBUD

SUDDENLY Frot gripped my arm. "Lee, the Double Entity Machine! Take it easy!"

I moved the nozzle-like projection end of the machine around to the front, flicked the button, and instantly covered Frot and myself with

the amazing beam. This done we jumped to one side and made our way across to the undergrowth. Looking back we apparently saw ourselves standing, just as we had been when I switched on the beam.

The monster beast did not hesitate longer. Imagining us easy prey it charged toward the two images, blundered clean through them, and crashed into the underbrush beyond, emitting a bellow that made the very ground shake. I pushed over the negative button and the images vanished.

Frot grinned. "That brute will puzzle over that for eternity," he chuckled. "Come on. . ."

We continued our progress with heavy footsteps. Several times we came across those rapidly expanding puff-balls, but as they began to shriek Frot walked quickly forward, broke them apart, and put the cores in his pocket. I saw no reason for this action at the time, but knowing the brilliance of his mind assumed he had a good reason for them.

About an hour later we broke free of the jungle and into the light of that sulphur-yellow sun again, with the gray-black sky above. Here and there faint, unknown star-clusters twinkled. I began to appreciate how lovely a planet the Earth really is.



We moved to Jelfe's side with resigned footsteps; hardly had we done so . . . when we found ourselves beneath the rotator apparatus in the laboratory.

In all my wanderings through space and time I never came across a world so replete with natural beauty. . . . The weirdness of this wandering on an alien world, surrounded by unknown and unprecedented things, never occurred to me—or to Frot. I think my experiences with the strangeness of Time had robbed me to a great extent of the emotion known as Fear. Fear, after all, is only ignorance. Where there is no ignorance, there can be no fear. . . . My main worry was Elna. It was purely for her sake that I insisted on pressing forward, and Frot, lean and wiry despite his sixty years, assented to my energetic decision without a word, scarcely speaking, his mind centering all the time on the puff-ball cores lying within his pocket. . . .

At length, as we neared the edge of a stagnant lake, fatigue began to overtake us. We seated ourselves on the bare, rocky shore and sat for a long time looking out over the unfriendly expanse, realizing, for perhaps the first time, the incongruity of everything.

At that point it seemed that we fell asleep. The next thing I knew, I was getting unsteadily to my feet, my eyes half closed. When I opened them to the full I received a stunning shock. I was not facing a lake, or anything resembling one. . . .

Before me, arranged in groups in tiers, were countless queer beings resembling centipedes. Innumerable green eyes set in earthly-looking faces stared down on me in implacable concentration. Arms, forming into two at the elbow, making four to each being, were folded—as were also the six legs supporting the weight of the short, heavy trunk. In an instant I recollected the vision I had had of Jelfel when I had been possessed of

X-ray eyesight in my first fight with him*—the same vision of a natural Jovian—made such to bear up under the terrific gravitative forces.

I swung around and found Anton Frot, apparently as calm as ever, by my side. He shot a glance at me then looked back again at the tiers of Jovians, around the enormously wide, softly lighted room, to the patterned floor at his feet, then back to the central figure seated a little in front of his unprepossessing fellows.

This central figure was usually heavy in build, and had, if anything, larger eyes and better cranial development than the others. He spoke at length, in a meaningless, high-pitched jabber.

Frot and I shook our heads. This being so the creature made a signal to two distant servants, and they came forward along the shining floor with a machine on a rubber-wheeled tripod. Standing three feet high, with their many legs and earthly faces, the two Jovian servants were as revolting as their fellows—like nightmare travesties of Earthlings.

THE machine was switched on and as it began to hum something happened to the minds of both Frot and me; we became capable of understanding two languages simultaneously—our own, and Jovian. As though the performance was perfectly natural, the servants took the machine away and we faced again the central figure.

"So you are Commander Lee?" he said, in his high pitched voice, and although using his own tongue I perfectly understood him. "I have long been anxious to meet the man who is pitting his tiny brain against the

* "Lines of Time." S. L.

strength of myself and Elnek Jelfel, my Ambassador. I, my friends, am Rath Granod—Master of Zagribud. His Serenity—and the All Wise.”

“That leaves little to our imagination,” Frot commented cryptically.

“Rath Granod—the devil who is upsetting Earth, eh?” I demanded grimly. “I’d like to tear the heart out of you.”

The All Wise ignored my hostile remarks. “Only once did you ever become cleverer than I,” he proceeded, leaning slightly forward. “That was when you flung Jupiter into the sun. You were too slow—we all escaped, as no doubt Jelfel has told you. You have come to Ondon to stop the stealing of Earthly bodies for the furtherance of our intellectual pursuits on the Earth. Do you realize, you poor fools, what you have done? Do you, Anton Frot, with all your childish mathematics?”

“My childish mathematics pushed Jupiter into the sun, anyhow,” Frot replied coolly, and at that Rath Granod’s face became a study in controlled passion. After a space of the most deadly, snake-like staring I ever witnessed, he resumed.

“You were both located near the Ripud Lake. The Light Wave Trap, of which you have had an earlier experience, Lee, revealed where you were. You were transferred here by a sixth-dimensional Rotator, exactly similar to the one Jelfel has on Earth. Now you are here, I shall use your body, Lee, for my brains. You are a good, very healthy, strong man. Just what I need for earthly conditions. You, Frot, will also become the brain-carrier of a Jovian. The trifling five hundred sent from Earth last night are now in our laboratories, and the work is progressing apace.”

I caught my breath in at that.

“You mean the massacre has begun?” I demanded hoarsely.

“It will begin at sundown,” Granod answered steadily. “You will be removed to our laboratories for examination by our experts—and tonight I will take on your form! You should feel honored, Commander Lee. You yourself, until we decide otherwise, will be, as it were, a disembodied entity. Quite a fair brain yours, Commander, but not so accurate as Frot’s. The fact that you are so receptive to the Language Communicator makes it obvious to me.”

“That machine?” I asked, and His Serenity nodded.

“Nothing very intricate about it,” he responded, revealing the same willingness to explain everything that was so noticeable in Jelfel. “All languages are composed of a series of sounds, and, if your brain is attuned to the vibration of those particular sounds, they make sense to you. If you don’t understand them, you, on Earth, would start the laborious process of learning the meaning of the vibrations—namely a fresh language. On Ondon we merely adjust the brain to be capable of interpreting the new sounds so that they form sense; hence you understand what I am saying because your brain-cells have been so altered.”

I nodded and waited for the next. It was not long in coming. Anton Frot and I were seized by the two servants and piloted from the room, down a long passage—in which I noticed instrument rooms containing amongst other things an exact replica of the sixth dimensional Rotator I had seen on Earth—down a wide staircase, and finally into an immense prison cell—more resembling a great cage than anything, the walls being composed of closely-placed bars. Within

this dimly lighted expanse we beheld a great crowd of Earthlings, from every walk of life, huddled together like cattle awaiting slaughter.

Frot and I were flung down the three steps and the cage door clanged noisily. Then we slowly got to our feet with the questioning eyes of the Earthlings upon us. For a space I did not speak. I looked beyond the bars and beheld the most amazing surgical laboratory I ever dreamt of, with white-garbed, stocky Jovians moving to and fro, filled with the industry of their craft. More than ever I appreciated how animalistic was the treatment of the Earthlings. . . .

"Odd they didn't take our stuff from us," Frot commented, taking the Double Entity Machine from my back and setting it on the floor.

"Only because they know we can't do anything," I replied grimly. "One thing only is in our favour; all the stolen Earthlings are here. Elna may be amongst them. I'm going to look."

"All right; I've a problem to think out. I'll see you later."

I WANDERED amongst the closely packed men and women, calling Elna by name, until at last, to my intense delight, I heard her respond. I turned in the direction of her voice, fought my way through the press, and finally reached her side. She was filthy dirty and unkempt, but otherwise unharmed.

"Sandy! Thank God you've come!" She drew me down on to the floor and we leaned our backs against the bars. "This place has got the Black Hole of Calcutta—which we hear about from history recorders—beaten to a frazzle. I've been here heaven knows how long, herded in with these other unfortunates. . . . I don't know when the massacre is to start."

"I do—at sundown," I answered grimly. "I've been having a talk with Rath Granod. I came here with a time-space machine—not by projection."

"You did! Anybody with you? Lan Ronnit?"

"No, only Anton Frot. He doesn't seem to realize the danger. He's absorbed in a problem of some kind."

Elna smiled faintly. "He would be—but he's a cheerful old dear all the same. He might even devise a way of getting out of here. . . . Well, I materialized here through a Jovian called Lep-Nooze—a horrible-looking specimen, too!" She shuddered at the recollection. "All these other folks were materialized through the night. This lab. out here has fairly burned with energy, I can tell you. By the way, how did you manage to speak to Granod? Does he understand English?"

"No—the brains of Frot and I were altered to understand Jovian. Quite an advantage." I explained it to her briefly.

"Then you can understand all about Jovian?" she asked keenly.

"Of course. But what's the use of that? Like having a million dollars on a mountain top."

She shrugged, a thoughtful gleam in her gray eyes. "Somehow I feel your knowing the language ought to be useful," she said absently. Then suddenly she scrambled to her feet. "No reason why we should leave Frot on his lonesome. Let's join him."

We made our way through the crowd and at last came upon Frot, seated with his back to the bars, his head in his hands. He looked up with a start as I touched him on the arm.

"Oh, it's you, Lee! Hallo, Elna, how are you? . . ." He paused and considered. "Lee, I've just been thinking

things out. These puff-ball cores—if only I could find some magnetic force of some kind, capable of reproducing the original sound in an infinite volume—”

“Amplifiers?” I suggested.

“Bah!” he snorted. “I mean, to hurl sound through the void, and yet make it arrive in its original din on another world—from Earth to Ondon for example—and then increase the din to full volume and shatter Zagribud with sound waves. It could be done. . . . Damnation! If I could only work out the right formula. It’s all a matter of maintained vibrations as opposed to forced vibrations. Maintained vibrations can, of course, be obtained by the electrical energy in the three-electrode thermionic radio valve, but that isn’t what I want at all. Reflexion of sound, too, has something to do with my idea, because when a sound wave strikes an obstacle the wave is reflected in such a manner that the reflected ray and the incident ray are in the same planes, making equal angles on opposite sides of the perpendicular to the reflecting surface—hence reflexion must always occur at the boundary between the different media. . . . H’m—a pity I cannot form the idea into proper focus. Magnetism is the solution. . . . But I will do it; I will do it. Be assured on that, Lee.”

“Look here, Frot, don’t you realize that death is staring us in the face at sundown?” I asked despairingly. “Unless we concentrate on the troubles of the moment you’ll never fix any ideas at all!”

He did not appear to hear me. “Atomic energy. Enough in two ounces of copper to drive a machine from Earth to Ondon and back to Earth again. The core of a puff-ball—enough sound to wreck a city, if

one weighs the equivalent,” he murmured. “By Heaven, yes! It’s an idea! I must compute.” He tugged one sheet from a writing pad he carried in his pocket and commenced to figure industriously with his electric pen, having for illuminant the glow of the radium bowls in the laboratory behind. Manifestly, he was completely oblivious to everything save the problem that taxed his brilliant mind.

I took Elna on one side. “The man’s hopeless,” I remarked. “He’ll go on like that until he either gives birth to a brain wave or gives up the attempt. My task is to find a way of saving all these good people before sundown. Living death. . . . Elna, for the love of heaven, help me think!”

She stroked her determined little chin thoughtfully. “I could think better with something inside me,” she answered presently. “Brought anything with you, by any chance?”

“Why, surely! What an inconsiderate fool I am! Here—” I reached down to my pack on the floor beside the Double Entity Machine and handed her some of the tabloid provisions we had brought from the time-space machine. She ate in silence for a space, swallowed a water-tabloid, then daintily dusted her lips.

“Ah! Elna Folsen is a new woman indeed! Now let me see what I can think up. . . . I still can’t help thinking knowing the Jovian language ought to fit in somewhere, but, like Frot, I can’t focus the idea.”

“No more than I can,” I answered.

“Try some hard thinking,” she suggested, in her practical way.

I sat down on the stone floor, took my head in my hands, and tried to shut out all distracting noises. My position was such that my eyes looked into the laboratory beyond—at first absently as I meditated,

then very gradually I became more earnest in my observation of a mild operation taking place at a near-by table.

An Ondonian—or Jovian—call him which you will—had evidently met with injury of some kind, for he was rushed into the laboratory on an automatic stretcher, taken direct to the nearest table, and instantly anæsthetized. From my vantage point I could see the operation being performed with amazing skill, to some part of his face. I caught a glimpse of a gaping wound in his cheek, of a flashing, bloodless knife performing amazing execution under the quadruple, tentaculate hands of the Jovian surgeons—then very gradually a *new face* began to form! The man's entire visage, even to his eyes, were re-modelled, as though removing a mask and providing another one.

Presently the restorative was administered and the man got up slowly from the table, felt his face carefully, and then dropped to the floor, walking slowly from the great laboratory on his six powerful legs. As he passed close to me I took a good look at him. His face, even his eyes, were new! The eyes were now darker, and the face more refined. Mentally I placed him as a worker, judging from his powerful legs. . . . He went slowly out of sight, and my mind revolved around amazing possibilities.

The sixth dimension Rotator—I knew its situation. Jelfel was dressed in the guise of an Earthling. This face-changing business. . . . Suddenly I snapped my fingers in the air in decision.

"Got it!" I breathed. "Elna, we're going to take a chance, and a hefty one. But it has just got to work. I must get Frot's advice. . . ."

CHAPTER VI

THE ARC THROUGH THE VOID

WE moved toward him. " . . . thus it follows that the media of the one might exchange with the other," he was murmuring, when we reached him. "A given quantity divided by that vibration—Yes, what is it?" he asked impatiently, as I commandeered his attention.

"Frot, a problem for you to work out. In that laboratory out there are six Jovian surgeons, all highly trained minds. In here are roughly five hundred Earthlings, all of good intelligence. Now, is it possible for five hundred Earthlings to hypnotize six Jovian surgeons, so that those six Jovians will do the bidding of one man, myself?"

He stared at me in amazement. "You are not mentally unbalanced are you?" he asked in concern.

"Of course not, man! I mean it! You know the power of a Jovian mind—its frequency, or whatever you call it. Can five hundred Earthlings render those surgeons incapable, for a time, of using their own minds?"

"I'll compute!" Frot replied, and delighted with the new problem tore another leaf from his notebook and figured hastily. I caught a glimpse of weird algebraical formulae over his shoulder and scientific symbols; then he looked up intently. "Providing the five hundred Earthlings rigidly and unwaveringly concentrate on a fixed thought, it can be done," he answered. "But they must not let their minds wander in the least. It works out at 9 divided by 9."

"Thanks, that's all I wanted to know," I answered grimly.

I moved to the nearest of the people, who were watching intently, and

in a low voice took them quietly into my confidence. When they learned their own lives were at stake, they became willing—more than willing—to assist. Briefly their instructions were, when I raised my arm as a signal, to concentrate all their mental forces upon the six surgeons beyond. The vibrations of their minds upon the highly sensitive, easily receptive brains of the Jovians would do the rest, I conjectured. It took me some time to arrange the details with the whole crowd, but word of mouth from one to the other was a fast carrier, and at last I was satisfied they all knew their tasks.

"And on no account cease concentrating until I give the word," I concluded, at which a lean, discerning individual, who had become self-appointed leader, nodded.

"But what are you going to do?" Elna asked in bewilderment. "Am I to concentrate, as well?"

"Certainly—you and Frot. I shall give orders to the Jovians in their own lingo, and if, as I hope, they are overcome, they'll mechanically do as I order. Briefly, I am going to get a fresh face!"

"A fresh face! What a treat that will be?" Elna remarked, unable to resist the opportunity for a friendly dig. "But, Sandy—why?"

"I'm going to try to pass myself off as Jelfel. I'll explain later in full. I'm now going to entice the guard in here. When he comes seize him—stun him—kill him—do what you like. But keep him quiet. Now, are you ready?"

"Right!" Elna exclaimed, and Frot nodded. The waiting people prepared themselves.

I moved to the cell door and motioned to the guard. He approached, his white face and green eyes framed in the door-grille.

"What's the matter?" he demanded in Jovian.

I did not reply. Instead I raised my hand and struck him full in the face with my palm. The sound echoed loudly in the dense air. Raining Jovian curses upon my head he levelled his ray gun through the door, but in an instant I had seized it, snatched it from him, and brandished it in derision in the air. . . . Then he did what I hoped for. Unlocking the door he hurled himself inside, two other guards coming up behind him. The first guard I stunned with the butt of the ray gun, the second blundered into the crowd and was forced helplessly to the floor. The third I tripped up as he came down the steps and settled him for a space with a smashing blow on the back of his thick neck.

For a space I waited, but no further guards appeared.

"All set!" I breathed, raising my arm for the signal. "Now—concentrate!"

Instantly the crowd turned their faces toward the six Jovians, and a dead silence fell.

LOCKING the cell door behind me I soon navigated the short passage around into the operating theater. For a space I hesitated, my heart hammering at my side. Then, as I saw two Jovians pass their tentaculate hands transiently over their brows, I took heart and strode boldly forward.

Again nameless fear sought to engulf me. Suppose the effort at mind control had been a failure? If so, I was walking into a death-trap. . . . I walked more deliberately as I approached the nearest surgeon. As I tapped him on the shoulder he moved slowly around, his deep green eyes meeting mine. To my overwhelming

relief they were without recognition or interest. A glance about me assured me that all the surgeons had ceased to work; were standing about in the throes of mental enslavement.

"You!" I snapped in Jovian, recognizing the surgeon as the one who had performed the facial operation. "Can you alter my face?"

He nodded vacantly, and I still stared unwaveringly into his green, mysterious orbs.

"You will do so!" I ordered curtly. "You will change this face of mine into that of a Jovian—will give me green eyes and a face like yours. Proceed!"

Although I realized I was probably taking my life in my hands, I laid myself on the operating table and waited. Dully, the surgeon motioned his fellows and they came to his side. I heard the hiss of the anaesthetic and wondered if it was the last thing I'd ever hear this side of Eternity. Beyond, I saw Anton Frot and Elna, with the crowd of Earthlings behind them. . . . Then I lost consciousness.

My return to consciousness seemed almost immediate, although actually, I learned later, it was some fifteen minutes afterwards. The surgeons were mechanically washing their instruments in a powerfully-smelling fluid. I felt my face circumspectly; it seemed but little different from what it was before, save that it was remarkably smooth. Turning over, I looked at my reflection in the shining surface of the operating table. For a moment I was utterly incredulous. Green eyes, coal black hair, square and unyielding features. . . . Was this the Sandford Lee I had known since babyhood? . . .

Under the influence of the restorative I soon regained my normal vigor, and marvelling at the painlessness of

the whole operation, slid to my feet.

The next task was to complete the first half of my audacious plan. The surgeons were again standing about, apparently struggling to reassert their normal faculties. I seized the nozzle of the anaesthetizer, switched it on as I had seen the surgeon do, and sent the fine spray aloft. Instantly a powerful odor drenched the air and the surgeons. I switched it off again, stumbling backwards as the strong fumes almost overcame me. I gulped at the clear air in the passage and looked back. The surgeons were slowly collapsing into unconsciousness. Revived, I moved into the cell again.

Those within, and particularly Elna and Frot, could only stare at me for a space.

"It is you?" Elna asked in wonder.

"Of course—with a Jovian face," I responded. "Now, we've got to get out of here. Follow me."

At the top of the cage steps I paused for a moment. "Friends, do exactly as I tell you, and ask no questions. That's all." I strapped the Double Entity Machine on my back once more, and led the way into the passage outside. The mob of people behind me made the most distracting din in the dense air, with all their efforts at silence.

We progressed safely along the passage, then came to a barrier of guards at the foot of the giant staircase leading to the comparative safety of the upper regions. Instantly I swung around, played the nozzle of the Double Entity Machine in the air, and rushed forward to the staircase.

The resultant confusion of the guards was amazing. They knew not which was real and which unreal. Whilst the crowd blundered up the staircase, the images remained behind. Several unfortunates were recaptured

and taken back to the cage, but the majority got through to the upper corridor. With Anton Frot and Elna at my side I peered down the immense corridor, recognizing it instantly as the one which led to both Rath Granod's Council Room, and to the instrument room where lay my goal—the sixth dimensional Rotator.

"Wait—and do as I tell you!" I breathed, as two guards suddenly appeared in view from around the corner of a contiguous passage. "This is going to be ticklish. Look down-trodden—the whole lot of you. If any of those guards from below tries to get up, just knock them down again. With a bit of luck we may yet escape. Get ready. . . ."

With those words I stepped forward with apparent casualness as the guards approached. They stopped, looked at me intently, then at the crowd at the head of the stairs,

"You and you!" I snapped, without giving them a chance to speak. "What is the meaning of this?" These Earthlings left below when they ought to be in His Serenity's laboratory? What has been taking place? I, Elnek Jelfel, Ondonian Ambassador, am unaccustomed to being treated thus. Explain it, fools!"

"Elnek Jelfel!" the two gasped simultaneously, then they suddenly came to attention as their odd forms would permit. "Master, we were not informed of your arrival. Rath Granod the All Wise did not inform us—"

"Why should His Serenity inform mere guards?" I demanded superciliously. "I came *via* the exchange of personality process. You know this Earth woman here, Elna Folson, is my exact energy-counterpart. Instead of merging through her in my laboratory, in comfort, I find myself

amongst this Earthling scum in the operating theater. I am annoyed—angry. Better care must be taken of the future carriers of Jovian brains!"

"Master, your Earthly form—" began one of the guards.

"Silence! Is it so wonderful that I appear in the guise I affect for my Earthly work? To the instrument rooms at once, and bring these people along."

"Yes, Master."

THANKING heaven for my knowledge of the Jovian language, and hoping that Rath Granod would not see fit to appear on the scene, I led the way to the instrument room I had seen, when being taken down the corridor on the first occasion. Once my comrades were within the room I turned to the guards. I read dubiousness in their faces.

"Retire! I have work to do!" I commanded.

They hesitated, uncertain. The mob, however, decided it. The two were seized, bound and gagged with strips of pliable metal, and fastened to the girders of a near-by machine.

"Now, Frot," I breathed tensely, closing the door and securely bolting it. "Everything now depends on you. We can win, if you can calculate. Is it possible, with this sixth dimensional Rotator, to alter the radius of its arc in space far enough to transport by batches, five hundred people back to Earth from Ondon here?"

"I'll see," he answered dispassionately, and again drew out his notebook and figured at lightning speed. I waited in dire suspense whilst he made calculation after calculation, thinking deeply at intervals, then working from a fresh angle.

"A difficult feat owing to the colossal length of the dimension's exten-

sion," he said finally. "It can be done by elongating the atoms that compose the sixth dimension. You know that the stretching force on a solid body per unit area is called stress, and the extension per unit length is known as strain. Within limits the strain ought to be in exact proportion to the stress, and on removal of the stress the body will return to its original length. The body is thus said to be elastic. . . ."

"Be damned to that!" I replied frantically. "Our lives hang on this!"

"I'm coming to it," he responded in his unhurried voice. "If the strain is too great the increase causes increased attraction in the atoms. If one goes too far the molecules themselves are separated and rupture and collapse occurs. This sixth dimension, as I see it, is half solid and half gaseous. In gases, molecules are separated by fairly wide distances—they can also move through large distances between successive collisions, the average distance being called mean free path. So, it follows, that if the mean free path of the gaseous half of the sixth dimension can be made to equal the strain placed upon the atoms of the solid half, the extension in length should reach Earth. It may fall short and pitch us into the void. I can't be sure. It would take too long to fully enumerate. It stands to logic, if we do arrive back, that we will land in the same Age as we departed from. Nor will the Earth have moved far enough out of its orbit to throw us out of true. . . ."

"How do we extend the sixth dimension?" I demanded.

"By using the Rotator with four times its normal swinging force. Thuswise the dimension will be momentarily extended by the pull of outward force from the center. In that

split second, if we set the Indicator to the farthest extension, 4556, which the dimension will reach, we ought to fall to Earth—then the dimension will resume its normal length. Like swinging a rubber ball on the end of an elastic thread. The thread will stretch on its farthest point then return to normal. I'll go first and test the idea."

"It's death here, or a chance to reach Earth," I answered grimly. "Right, Frot, take your stand."

Even as Frot stood within the range of the Rotator, imperious hammerings came upon the door of the laboratory. I flung in the switches with desperate haste, set the Indicator, and released the power with its energy quadrupled. Amidst a booming roar Anton Frot vanished from view. There was no time to consider whether I was hurling everybody to their doom or not. I herded the crowd at top speed into range, and sent them off in batches one after the other, one eye cocked anxiously on the slowly collapsing door, melting with the force of a battery of ray guns.

At last only Elna and I were left. I pushed in the automatic switch, and even as I did so the door collapsed and a party of Jovian guards, with Rath Grand himself urging them on, rushed into the laboratory. . . . But they were too late.

The view vanished as the dimension rotated. A terrible feeling of nausea followed as we performed an invisible arc through the void—the center of the dimension being in hyper-space. So rapid was the transit the air of Ondon had not time to escape from the dimension before it rotated around to strike the Earth. Even so we experienced a tightness of breath, a sensation of deadly cold,

and a feeling of sinking. The whole thing was akin to an intensified falling dream. Then suddenly we were rolling over and over on the ground, bruised and shaken, as the end of the dimension struck the third-dimensional plane with four times its normal force, and pitched us free. Instantly the automatic control on Ondon must have worked and the dimension ceased to be.

Unsteadily I got to my feet, clutching Elna by the arm as she rose to her feet. About us, on a peculiarly familiar hill, were all the Earthlings I had sent forth, and Anton Frot. He came slowly forward.

"I think I've got it, Lee," he said thoughtfully. "It will have to be amplified and then projected. The sound will therefore be open to infinite amplification—"

"Don't you realize what you've done, man?" I demanded, seizing his lean shoulders. "We've beaten Rath Granod! Look where we are! On the side of the valley in which are Jelfel's headquarters! Down there is where he is working. . . . That dimension must have been permanently fixed in this position. . . . Frot, you're a genius!"

"Compared with this sound problem, that was simple computation," he replied worriedly. "H'm, a difficult task, indeed."

I turned to the waiting, somewhat frightened people. From their expressions in the starlight, they seemed to be under the impression that they were vividly dreaming.

"Folks, return to your homes at once," I ordered. "And go quietly. With Jelfel close at hand we're none too safe. Tomorrow, war with Jelfel will start in earnest. We will carry the battle right into the enemy camp! You've been saved from a ghastly

death, so thank the Gods for it. The city is over in the distance a long way. But we've got to make it. Come along."

So we set out resolutely but wearily for the distant glowing masses of New York. . . . It was dawn before we did at last straggle in, worn out by our experiences, despite rests on the journey. In the city the rescued Earthlings broke up into units and moved homewards. I accompanied Elna to a hotel—for she had no flat in this Age, thanks to the changing of time—and then went on with Anton Frot.

He was still deeply thoughtful even when I left him, and bidding me a perfunctory "Good night," as though we had been out for an evening's walk, he went into his apartments muttering incomprehensible remarks about "shifting fields of energy."

For my own part I crawled back to my flat, dead beat, fell on the bed, and instantly was fast asleep. . . .

CHAPTER VII

THE SOLAR GRAVEYARD

I AWOKE the following morning consumed with vivid energy. I am inclined to think that the atmosphere of Ondon contained a far greater percentage of oxygen in its content than earth did, which made it a remarkably healthy place for the lungs, if for nothing else. I thought Hilton, my manservant, would have dropped dead from shock when he saw me for the first time after I had arisen and appeared for breakfast. He took one look at my jet black hair and green eyes, swallowed hard, and set down the breakfast with a thud on a side table.

"My Heavens!" he ejaculated dazed-

ly, genuinely shocked out of his senses for once.

I smiled faintly. "All right, Hilton; I'm still your master, Sandford Lee. This make-up is for a very special reason. There are some remarkably clever surgeons on Ondon." I told him of my experiences, and he listened with his customary, detached attention, slowly recovering his normal urbaneness as I proceeded.

"Remarkable, sir! Again you have outwitted this devil Jelfel at his own game. What is the next move, may I enquire?"

I considered for a moment. "Hilton, I think you can help me a little. Were there any disturbances after I left last night?"

"Last night? Three nights ago, sir—pardon the correction."

"Three?" I repeated. "H'm, I never will be able to understand the relation of time to space. Well, what happened?"

"Nothing, sir. There have been no more sixth-dimensional thefts, or whatever they are. Looks as though Jelfel is biding his time."

"What happened to Lan Ronnit's raiding party?"

"As a matter of fact, sir, I don't know." A shadow passed over Hilton's face. "From reports, it would seem that Ronnit and his men completely vanished! They set out to destroy Jelfel's headquarters, and—haven't been heard of since."

I jumped to my feet in horror. "What! Why didn't you tell me this before?"

"In the general shock of seeing you thus, sir, it slipped my memory. . . . More coffee, sir? Or more toast?"

"No, man—no! Good heavens, this is disastrous! I've won one trick and Jelfel has won another. Lan Ronnit must be found!"

"Indeed, sir, I agree."

Hilton watched me with a contemplative eye as I hastily scrambled into my uniform coat and departed. Shortly afterwards I was in the presence of Templeton. For a space he sat in grim silence, looking at me—then his cold eyes flashed to the guards, and back to me.

"President, forgive the illusion created by my appearance," I concluded. "I am still Sandford Lee, but with a new face. . . . Don't forget you once misjudged me, and very nearly lost a population because of it. Don't, for heaven's sake, make the same error again."

He hesitated, debated in silence, then to my intense relief nodded.

"I have infinite faith in your ability, Commandant," he answered quietly. "Certain little mannerisms alone convince me that you *are* Lee, otherwise I would have you imprisoned as Elnek Jelfel himself—though, if anything, you are a trifle bigger than he is, I believe. . . . Have you anything of moment to report?"

I told him of the saving of the five hundred Earthlings, and his face came as near to genuine admiration as I had ever seen it.

"Commendable work, Commandant. . . . For some reason, at present unexplained, Elnek Jelfel has ceased his activities. Either he has met with an accident; been killed, or something, or else he has returned to Ondon. I don't know. There is a doubtful peace hanging over everything. The only flaw is the mysterious disappearance of Lan Ronnit and his raiding party. I followed your suggestion and some time after your departure the other night sent a fleet of forty air machines, led by Ronnit, to attack Jelfel's headquarters in the valley. Since then, nothing has been seen or heard of

them. I have sent scouts to search, but they also have not returned. Have you any suggestions?"

"I'll explore for myself," I answered grimly. "In any case, I have a plan to put into operation; that is why my face is altered. If you will allow me, I'll leave at once."

"Assuredly," Templeton nodded. "The sooner this trouble is cleared up, the better. Headquarters are deluged with enquiries concerning the stoppage of our time liner service."

"Better stoppage of the service than death to all concerned," I replied; then I saluted and left the chamber. The next hour I spent in gathering in Anton Frot and Elna. Whilst Elna was as practical and active as usual, Frot was still vaguely absorbed by his sound problem. . . . In his flat I made my plans clear.

"What I have to do is to try and convince Jelfel that I am an agent from Ondon, in the body of Sandford Lee," I explained keenly. "He must do as I bid him; explain whatever I demand him to do. In that way, as I see it, he ought to be under control. . . ."

"Suppose he reads your mind?" Elna enquired. "He's an adept at that, you know."

"I'll only concentrate on what I want him to read," I responded. "That ought to serve to convince him I really am an Ondonian in Sandford Lee's body. My one desire is to get him back to Ondon on some false pretext, and then wreck his laboratory here. Then he won't be able to get back."

"Unless by the sixth-dimensional Rotator," Frot returned steadily.

"Not even by that if his machinery here is destroyed. That Rotator is somehow linked to earth by Jelfel's machinery; I'm sure of it. We can rest assured he'd fall in the void if that's gone."

Frot considered in silence for a while. His reply was not reassuring. "An idea that has all the qualities of feebleness, Lee. He'd manifest through Elna again, or something. I tell you the damn man's a genius—an impossible enemy!"

"I still insist we can protect ourselves if we get rid of him," I said stubbornly. "This time we can stop him building more machinery here, if by some chance he gets back to earth. Those lights in the sky—which I saw when his first machines came to earth just before time changed—if we see them again we can stop him getting any further. We have the advantage of knowing what's happened before."

"Curious you saw that machinery *before* time changed," Frot remarked pensively.

"Not altogether—that part of the landscape probably *was* in future time at that second," I replied. "A few seconds afterwards the alteration in time reached us. But that's of no consequence. Once I'm rid of Jelfel from earth I shall feel free to act. Then we can think out a really feasible method of destroying him and his devilish companions."

"Mebbe," Frot agreed. "Personally I would sooner try commanding the moon to break in half. It would be easier. . . . Still, I'm with you. What's next?"

"I'm heading for Jelfel's place now. Come on."

Shortly afterwards we were skimming in a time-space machine across the intervening landscape between New York and Jelfel's headquarters.

"The only way to make a satisfactory entrance into Jelfel's laboratory is *via* the time apparatus," I remarked. "My idea is to go fifty years ahead, then drop down into the exact

position where Jelfel's headquarters once were. Then, reverse back to the present time, and hence we'll merge inside his laboratory—probably burst the walls apart. That doesn't matter, though."

"How do you know you won't merge inside a solid?" Frot asked, coldly incisive as ever.

"I don't—but the chances are we won't. Anyhow, we'll have to chance it. You two will be captives that I've brought back from Ondon. This machine is the one in which you two and Lee went to Ondon. Understand?"

"Proceed," Frot nodded, and gave himself up to thought.

I SET to work with the time controls as we dropped down towards the depression in which lay Jelfel's laboratory. I felt assured it was the safest method of getting inside his mysterious domain. It would have been possible to enter with the Franton atom-destroyer again, of course, but I could hardly picture an Ondonian being so clumsy in his entry. Hence the time-machine idea. With a smile I pushed over the time-band switches.

To my horror, however, the machinery refused to respond! The gaseous time-band seemed useless. The vessel continued to hurtle downwards with breakneck speed, instead of gently rising up.

"Hurry up, Sandy!" Elna panted frantically, staring through the window, then with wondering eyes back to me. "We're going to crash at—Whoa! Look out!"

She flung herself back from the window, Frot raced to the opposite end of the chamber, and I still hung like a helpless fool to my switches. With a sudden stupendous concussion we struck something of incredible hardness—not the soft ground of the

hill beneath which lay the laboratory, but an invisible wall. The time-space machine rebounded like a rubber ball, pitched crazily through the air, and fell with numbing force to the bare earth on the valley floor itself. . . .

It became still.

Dazedly I staggered to my feet and helped up Elna and Frot. They looked at me in silent indignation, rubbing rapidly merging bruises on their foreheads.

"Some pilot you are!" Elna sniffed. "Commander of Commanders! Huh!"

"Radiation or vibration, or something, shielding the laboratory," I muttered. "And the time-levers were useless, too. . . . We'll have to try and enter with the atom-destroyer after all. No other way. Come along. . . ."

"My dear Commander, I shouldn't trouble if I were you."

The three of us spun round at that metallic voice. The figure of the Jovian master-scientist was standing behind us.

"I have always known you to be courageous, but I never knew you were a fool," he said coldly. "Your playful efforts at disguise distinctly amuse me. You see"—he smiled cynically—"you reckoned without my superior mentality. When you explained your plans to Frot and Miss Folson I heard them all by mental sympathy—namely, I attuned my brain vibrations to yours. The rest was simple. A careful following of your machine from New York—*via* the Light Wave Trap—the arrangement of atomic repulsion from the soil of the hill, a blocking of the molecules and interstices of the time-band—and you were powerless! Then, my arrival here—just the Rotator again. Nothing in it at all. . . ." He moved forward slowly, his eyes upon me. "Really remarkable how handy the soil of earth is for

atomic repulsion," he murmured. "Just conceive, my friends, the unimaginable force that lies within each grain of soil! I split open those grains with electric current from my laboratory below, used a fan-shaped current-beam. This had the effect of releasing the energy of the soil atoms in a steady stream. As one atom released its energy another took its place—almost infinitely. As force usually moves the same way as it is propelled, the force went upwards, forming a screen of repulsion on the hill. You struck it, and, I imagine, found the result a trifle—er—shall we say, uncomfortable?"

"Jelfel, I came to get rid of you," I panted. "I've failed again—but one day I'm going to get you. I mean it! You—you devil!"

He laughed faintly and revealed his artificial teeth. "This battle really interests me," he commented lightly. "I must confess you did well to transport those five hundred Earthlings back to earth. So well, indeed, that I realize another system will have to be used. The sixth dimensional Rotator is too clumsy. It lacks the finesse for which I am remarkable. . . . Mainly for that reason I have ceased using the Rotator these last few days whilst a better system is evolved. . . . By the way, I've been combing the brains of young Lan Ronnit—"

"You've what?" I shouted in murderous fury.

"Patience, Commander, please. Your manners indeed are not what they were! Ronnit, along with an army of men in forty air-machines, tried like a collection of infants to rout me from my lair with such devices as ray guns, energized iralium, and similar elementary material. I was more than a match for the whole batch of them. I destroyed thirty-nine

of the ships and their crews—they were useless to me for projection to Ondon—and kept the fortieth ship containing Lan Ronnit. Once I had removed him to my headquarters the fortieth ship went the same way as its fellows. So did all the scouts who buzzed round inquisitively."

"Destroyed the fleet?" Elna asked in horror.

"Certainly, my dear young lady. You will probably know—you will, Frot—that there is a slight division between molecules; that they are *almost* in contact? It was a simple matter to generate a beam composed of the same energy as the molecules in the air-machines. Hence, as like repels like, the division between the molecules was widened to such an extent that all the ships blew asunder. Like that!" Jelfel snapped his artificial fingers in the air and looked at us in amusement.

"You swine!" I exploded, feeling once again that utter hopelessness now I was in contact with him. I have spoken before of his uncanny personal magnetism and impeccable manners.

"The time is nearly up for the automatic switch on my Rotator to take me back to the laboratory," he said presently, glancing at a queer instrument strapped on his wrist. "Please be good enough to stand here with me."

"I'm damned if—" I began savagely.

"It would be as well," he persuaded in a voice of ice, his eyes glowing.

I shot a helpless glance at Frot and Elna. We moved to Jelfel's side with resigned footsteps; hardly had we done so when we seemed to perform that almost familiar arc in space and found ourselves beneath the Rotator apparatus in the laboratory. In the ceiling the radium globes glowed with their customary snowy effulgence.

AT our appearance a haggard figure rose from a metal chair at the far end of the chamber and advanced unsteadily. I was shocked to behold Lan Ronnit, incredibly changed—a sunken wreck of his former lean, active self.

"Ronnit!" I seized him by the shoulders and looked into his face intently. For a space he studied my new features dazedly, but in a few swift, well-chosen words I made matters clear to him.

Jelfel, standing to one side, smiled faintly. "It is a source of unending mystery to even my capable brain why humans indulge in so much needless sentiment," he remarked. "You fawn over each other, love each other, pity each other. Your sexes do the maddest things for each other. . . . H'm. I once said the human race was the most motley, bigoted collection of self-righteous, narrow-brained, non-intelligent idiots I ever saw from cosmos to cosmos—and what I have seen since has done little to prompt me to amend my opinion. Consummate fools! Prostrating yourselves over chemicals!"

"There's such a thing as love and kindness, which you have been born without!" Elna retorted hotly. "Love is the foundation of the Universe, Jelfel."

"How diverse you are, Miss Folson! *Power* is the foundation of the Universe. The greater the brain, the greater the power. . . . But enough of this! Ronnit will be soon in good health again, if he lives long enough. From him I've learnt one or two things of interest—a Double Entity Machine and Brain Detector. Do not attempt to use such machines again, Lee. I know all about them now." He smiled grimly. "Two more weapons you are now to be without! Even if I

don't use such inventions, I'll stop you using them at every turn."

He paced steadily about as he spoke, and presently resumed in a detached voice.

"I am working on a scheme now by which earth itself will be taken to within easy flying distance of Ondon itself! I have experimented, and have found that atoms can, by proportion in size, be brought close to each other without undue disturbance, and as planets are nought but giant atoms I see no reason why the feat cannot be accomplished. Rath Granod has approved the idea, and is even now concentrating all his activities in having the immense gravitative machinery built that will spread a field of magnetism through the void to shackle the earth. . . ."

"Jelfel, this is the limit!" Ronnit muttered.

"I may rise to greater heights yet," Jelfel answered, unmoved. "The feat will be done by utilizing the earth's own lines of force, those natural magnetic properties which you Earthlings arbitrarily define as the Poles. The Earth's own magnetism, and its slow chances in a cycle of roughly 600 Earthly years is a mystery to you—but not to Ondonians. That magnetism is the outcome of absorption of magnetism from the ether, occasioned, one may say, by friction during the Earth's endless journey through that medium. Now, all the planets possess this natural magnetism in a greater or lesser degree. Earth has it; Ondon has it. What easier then than to build machinery to link the two magnetisms together? This Granod is doing. Gradually the two planets will come together. . . . That is the outline of the idea. Later the full details will be in hand."

"For the sake of getting the Earth

you will wreck an entire Solar System?" I demanded.

"Admittedly there may be disturbances," Jelfel confessed, "but so long as this fine world of Earth is untouched, what matters it? The Earth will be kept steady by the attractive force during its journey through the void. No harm will befall it, beyond the freezing with cold as it passes beyond the radius of action of the sun. During that time all Earthlings will be placed in a state of suspended animation—to revive when the warmth of our own Ondonian sun pours on the world. Then we shall remove the bodies as fast as our air-machines can do it. Thuswise we save an enormous amount of time and labor—and the transference of our city of Zagribud will present no difficulty—whereas to transport it from Ondon to here under the present distance would be extremely difficult. Just for simplicity, you understand. Once we have everything to our satisfaction, our brains and cities transferred, and so on—Earth will slowly be returned to its normal place in the void, and our work is over."

"Why don't you make a synthetic planet?" asked Frot coldly. "You're clever enough."

"Truly, but it would never equal Earth's fair beauty. . . . And now, my friends, I come to the most important part of the proceedings. . . ."

Jelfel ceased his pacing and faced us squarely.

"I have decided to be rid of you all," he said slowly. "I owe you a debt for your savage attack on me recently. It took me some time to recover from that blow on the head from you, Ronnit! I would have been rid of you all before, only I thought your bodies might be useful—particularly Miss Folson's, with her energy counterpart

to mine. It is essential now that you be wiped out. My plans are too immense to brook interference. I could radiate you out of existence, could even kill you with mind force, but I feel that something more elaborate is called for." His green eyes smoldered. "Lee and Frot, you threw Jupiter into the sun—you planned for me an unholy death. I have decided to do the same for you. But the difference will be that you will not escape, where I did."

"You're going to what?" I asked dazedly.

"I startle you, eh? I am given to such penchants, my friends. Yes, you are all going to your deaths—in the sun! I shall feel content that you have followed the planet you destroyed. Further, your time-space machine, in which you will make the journey, will be completely uncontrollable, both for time and space navigation, as, until you hit the sun, I shall immovably lock your switches with radio waves! As you hurtle towards your day-star, think of Rath Granod—and me. Good bye, my friends. . . ."

Even as he had been speaking he had forced the four of us into the area of the sixth dimensional Rotator. The button flicked, and an instant later we found ourselves within the time-space machine again. The door had, of course, not been opened, and all our efforts now to shift the bolts were unavailing.

"I speak to you by beam radio," came Jelfel's voice from the air, sudden and startling. "By the same system of radio propulsion I control your machine. Thus . . . Until you strike the sun."

Dazedly we watched the switches on the control board jumping as though pushed with unseen hands. Another moment and we were shoot-

ing into the air, went round in a wide circle, and then turned directly towards the blazing orb of the sun.

"Best wishes, my friends." The voice of Jelfel ceased, but remote control remained . . .

For a space we stared at each other in blank dismay. Already the Earth was falling away beneath us as we shot headlong into the infinite. I switched on the floor-gravitator—Jelfel evidently had no wish to deny us that—and looked about me.

Elna laughed shortly. "Four perfectly good Earthlings heading for the King of Ovens," she commented grimly. "Trust Jelfel to think of something picturesque."

"Diabolical, you mean," Lan Ronnit growled, hands in pockets, staring out on the utter blackness of space. "We're thoroughly in the cart now!"

"It might be mathematically possible to—" Frot commenced absently; but whatever he had in mind didn't materialize. He shook his head doubtfully and joined Ronnit.

JELFEL'S remote controlling apparatus, perfected to an almost incredible degree, guided our tiny, helpless time-space machine presently into direct line with the blazing, prominence-edged sun. I took a flashing glimpse at the blinding photosphere, and shuddered. Ninety-three million miles from Earth, and we were hurtling towards it with ever mounting speed, and would finally attain a maximum speed of that of light. I moved about and bit my lip in frantic concentration.

"We've about fifteen minutes to do the most desperate thinking we ever did," I said presently, suddenly unaccountably calm. "You know how we stand. How do we get out of this?" I looked at the chronometer on the

wall. It read 11-15. At 11-34, approximately, we would strike and enter the sun . . . We were fortunate in having vacuumed walls to our machine; neither heat nor cold could reach us.

Frot took a seat and buried his high forehead in his hands. Ronnit stared at the growing sun through black goggles and wiped perspiration from his face with his sleeve.

Suddenly Frot looked up, his eyes gleaming. "Lee, this time-space machine. . . . Is it not made into a space machine by covering the Carrenium alloy with negative metal sheets?"

I nodded. "Yes, Frot. Ordinarily, but for the negative plates, this machine would instantly float into the fourth dimensional time-band. Why?"

"I have a great idea." He jumped actively to his feet. "That Time Indicator, for setting the period you wish to visit. Is it held by remote control?"

"I don't suppose so," I replied, moving to it. "This only sets the time; useless without the machinery in work." I swung it round the dial. "Yes, that's all right. What about it?"

"Think hard, Lee. When, in your early experience, you were flung into far futurity, at what period had the sun become a dead star?"

I thought deeply for a moment or two, then gradually I remembered the amazing number of years. "Three hundred and twenty billion years was the reading," I responded. "That is the maximum the indicator will take. As I was unconscious in that period the sun might not have become extinct until some time after that."*

"We'll chance it," Frot responded. "Our momentum through the time-band will help to carry us forward as well. Set that Indicator to maximum."

*"Liners of Time." S.L.

I did so, then looked at him curiously. "What's the idea, Frot?"

He seized my shoulder tightly. "A chance in a million of getting free," he said tensely. "Several of these plates on the outside have got to be taken off—torn off. Anything! The ship will then float into the time-band, and as the indicator is set for the machinery we will automatically move on three hundred and twenty billion years. Don't forget this machine is equipped with accelerators. The time will pass almost immediately, instead of dragging out. You understand—move on to the time when the sun is a dead star. Jelfel is only stopping you working the time levers; he hasn't interfered with the machinery. It will work if we can only get those exterior negative plates off . . ."

"But how?" I demanded. "In the name of sanity, how?"

"The Franton atom-destroyer," he replied complacently. "In your belt there. A super-priser . . ."

"By heaven, it's a chance!" I exclaimed. "Come on—all of you . . . And let's hope Jelfel isn't listening to us by radio."

Evidently he was not, for nothing untoward occurred. At top speed we raced to the emergency chamber and donned space suits—composed of rubber and springs with vacuum lining in between that negated heat or cold. To each helmet was attached a telephonic apparatus for speech, and in the inner sides of the suit reposed energy heaters of minute size, and upon our backs were oxygen cylinders. Thus equipped I flung up the manhole lid, muttering inward thanks that Jelfel had not seen fit to block the emergency chamber as well, and floated up through the opening to the surface of the ship, with Elna, Frot, and Ronnit, grotesque bloated forms

in their suits, drifting behind me. Our life-line fastened to the deck was a security, although there was little chance of us floating away. We were, in a sense, four small satellites held by gravitation of the little mass of the space ship. The life-line we used to pull ourselves about from place to place.

The instant we reached the time-alloy section of the machine the full-bodied glare of the sun smote us—a flaming inferno apparently directly above us. Through our dark glasses the whole void seemed to be a mass of streaming, colossal prominences.

"Quickly! Prepare to move off the plates!" I said into the Communicator.

"We're ready. Hurry!" came Frot's cryptic voice.

So we hung there, keeping exact pace with the ship, lying full length in the sheer void with the hurtling day-star sweeping ever nearer. My hands shook with the terror of the moment as my thick gloves fumbled with the atom-destroyer. Silently I praised the gods that had led Franton to make his machine of a metal impervious to the cold of space.

The moment I pressed the button that stream of terrific force struck the negative plates of the machine. The rivets flew apart like dust. Like a razor-edge that merciless beam cut beneath the plate, tearing out the welded portions like a wood-knot before a super-drill. I had to exercise extreme care to avoid destroying the valuable Carrenium alloy itself; even as it was I dented it badly in places, but on the whole little damage was done. The instant the plate was free it rose up and stopped six feet above the falling flier, keeping exact pace. For an instant I thought of destroying it, then realising it might be need-

ed some time to enable us to use the space ship again, we hastily anchored it to the vessel with hawsers . . .

Valuable seconds passed as two more plates were literally ripped up and floated to the same spot above.

The void was no more. Nought but the blazing, unthinkable effulgence of the sun filled all the universe. We could do no more. Even through our black glasses the glare was blinding. We closed our eyes. Either the vessel would now rise slowly into the regions of the time-band or else . . .

I realised, as I hung there, that once the machine entered the time-band, if it did, we would again pursue a straight line, but hit the sun in far futurity, if, as I hoped, the newly equipped device of instantaneous time switch functioned. On my previous adventure in far time we had of course not collided with any solid body, since to a great extent, time was mapped out clear of obstacles. Always, though, a time machine followed a straight line, so whatever lay in the way—unless it dissolved in the interval—would still be in the way in the future. There are no corners in Time!

AS I thought this out I lay, in silent horror, in space. Dimly I beheld my colleagues likewise, motionless. A weird assortment! Four human beings deep in the depths of their impregnable space-suits, three anchored sheets of metal, and the space ship itself, all falling towards the sun . . .

I told myself it was no use. Our effort had been in vain. This was the end. Then a sudden thought struck me—a desperate one. I issued quick orders into the Communicator.

"Hang on to the space machine itself—otherwise, if we hit the time

line we'll be separated. Hurry, for God's sake!"

Instantly the four of us seized what projections we could and held ourselves there by muscular effort—a very slight effort, indeed. I closed my eyes again. Never have I known such horror. Those of you who have never lain in sheer emptiness with the abyss of the flaming sun beneath you, and the incomputable magnitude of sheer empty space above, can hope to realise our position. Then—

The machine jolted!

I waited for instant fiery death. . . . But nothing happened. All remained deathly silent. Very tardily I opened my eyes. For a second I beheld unthinkably black sky; then abruptly the vessel struck something with grinding force. I was flung clear, in fact torn from my hold, and instead of falling seemed to be literally thrown down. But for my rebounding space suit I should undoubtedly have suffered severe injury from the colossal concussion.

I lay as though chained to the ground—ground of curious black gleaming stuff. Staring upwards through my dark glasses, nothing was visible. With vast effort I flicked the button in my glove for shifting the dark lens, and then beheld, now through clear glass, an unfamiliar sky dotted with unknown stars. Again with terrific labour I screwed my head round and beheld my companions, fortunately unharmed by their rebounding space-suits, all lying flat. The time-space machine lay half buried, whether wrecked or temporarily out of commission I did not know then.

"Are you alive?" I said into the transmitter in my helmet, and only one voice—the calm, methodical tones of Frot, answered.

"I'm alive, Lee. Don't know about the others. You realise what's happened, of course?"

"Surely—this is the sun itself, isn't it?" I asked, hardly able to use my jaws for their unprecedented weight. "So far on in time that it is a dead star. Just as you calculated, Frot. We followed a straight line when reaching the time-band and hit the sun in dim futurity. That emergency switch made the transition through time immediate. This stupendous gravitation—mass, of course."

"Exactly. Know what this stuff is we're lying on?"

"Looks like—like coal slack," I answered.

"No, it's pure magnetite; powdered magnetic oxide of iron. When the sun was normal this stuff existed with all the other elements as a gas. Now it's cooled we have the solid stuff. Look countless miles of it—a desert of magnetite, minerals of natural magnetism. Lee, along with my sound idea, this magnetite is just what I want."

"Maybe," I answered. "Our task, though, is to get back to the ship. How are we going to do it with a gravitation like this?"

"Try rolling," he suggested.

We endeavoured to do so, but each movement took so long a time, each effort such a colossal strain, that we progressed roughly only a few inches in thirty minutes and that at the expense of our oxygen cylinders, which would not last indefinitely.

"We can't do it," came Frot's wheezing voice. "The gravitation is too strong. We weigh enormously heavy here. Now let me think . . ." There was silence for a space. I lay breathing with difficulty, wondering if this was to be the finish—death on a dead sun, tens of thousands of years

ahead of natural time? To lie forever facing the friendless stars. Then Frot's voice, practical and intense, aroused me from my gloomy lethargy.

"Lee, have you still got that atom-destroyer?"

"Yes. What's the use of it?" I asked.

"You told me a long time ago that that disrupter can also become a repulsor. It opens for the alteration, doesn't it? So Miss Jeron told you, I believe."

"Right enough," I answered. "But what—"

"An experiment," he answered. "Try and give it to me."

I did give it to him—about an hour and a half later! It took us that long to move the yard that intervened between us. With a hand like a ton weight he took the enormously heavy atom destroyer and proceeded with infinite difficulty to make adjustments to the tungsten rollers within. At last he had the thing to his satisfaction, turned the lens downwards, and pressed the button. To my astonishment he immediately rose from the ground and crashed over two feet away.

"It works!" his voice exulted. "I'm using this thing now as a repulsor. It is powerful enough to lift me every time. True, the pressure is terrific, especially on the lungs and brain, but it's the only chance. I'll try again. Hang on a while."

And so he commenced the most amazing series of hops and leaps I ever saw, resting between each movement for a long spell. . . . After an interminable time he reached the time space machine, and his voice floated to me again.

"The ship doesn't seem to be much damaged, Lee—this magnetite is yielding stuff. The only thing to do

—for of course Jelfel's radio influence on the ship ended some millions of years ago!—is to get the ship into the time-band again, then keep it stationary whilst we fix back those negative plates. We can do it in space. As you three are still fastened to the ship you'll be dragged along into space if I can get the ship's Particle Disintegrators going. If I quadruple their force it ought to get the ship clear of this damned gravitation. . . . Before I do that I want a container full of these minerals. Only one way to do that."

His voice ceased altogether and he disappeared inside the machine—to reappear I knew not how long afterwards, rolling an empty container which he dropped over the side. It half buried itself instantly in the loose magnetite, and I dimly beheld a stout cable anchoring it to the time space machine. Obviously Frot was going to dredge his precious mineral, and in space the stuff would remain in the container purely by their own mass. . . .

Another long spell followed. I felt my oxygen supply was slowly giving out. What with the stupendous gravitation and thin air in my tank I was only semi-conscious. Then suddenly I became aware of being dragged along the magnetite surface. I beheld the dull flaring of the enormously strained Disintegrators as they tore against the sun's mighty gravitation in order to raise us to the safety of the time line. Weight, crushing and strangling, bore down upon me. . . .

Again I was only saved from instant death by the springs of my spacesuit. Dimly I had a remembrance of being dragged upwards, of seeing my companions acting likewise, then either my air gave out or I fainted. I do not know. . . .

CHAPTER VIII

THE PLANET OF SOUND

GLORIOUS, life-giving air, surging into my lungs, brought a return to my normal functions, to a certain extent. A wonderful feeling of lightness after the maddening pressure of the extinct sun. I realised at last that I was lying on the wall couch in the control room, Anton Frot holding an oxygen cylinder near my mouth.

Little by little I commenced to recover. He looked at me peeringly in the light of the roof bulb.

"All right now?" he enquired.

"Yes, thanks. What about the others?" I looked up in some alarm as I beheld Elna lying full length upon the floor. Lan Ronnit, however, was standing some little distance away, his arms folded and a dubious look on his lean face.

"Elna will be all right," Frot assured me, and laid his cylinder on one side. "Being a woman her physique is not so powerful as ours; she's been laid out more completely. Your cylinder was faulty; that's why you collapsed as you did. In the interval Ronnit and I have been out on the ship and have put the space plates back, but—" Frot paused and looked at me dubiously. "In fusing the plates into position I melted some of the time alloy. . . . We—we can now travel in space, but not in time."

I looked at him in alarm. "Good heavens, Frot, do you realise what this means?"

"Only too well," he replied in a sombre voice. "Out of the frying pan into the fire. I've got my magnetite aboard if we need it, and at the moment we are heading for just anywhere, now roughly eighty million miles from the dead sun, absolutely

in unknown time and unknown space. God, what a fool I was! . . . Lost! It's a grim thought, Lee. To think that Jelfel, Earth, and Ondon died tens of thousands of cycles ago, yet actually we only left him about six hours ago. I never shall understand time." He shook his bald head worriedly.

"Are we moving through space now?" I asked, getting to my feet.

"Yes, but I've shut the motors off. No sense in using them, unless we approach a planet and need them to throw us clear. . . . We've got to figure something out, Lee. I don't know how to repair that melted alloy; only Earth has the necessary stuff for the job."

"Before we do anything we'd better revive Elna, have a meal, and then figure things out coldly and soberly," I decided practically. "Give me a hand, will you?"

Under our united influence we succeeded in reviving Elna into fairly normal life. The freedom from pressure and free air again worked wonders, and after doses of ekrimar we all felt our natural selves again.

"Only one thing is in our favour," Ronnit said, as we started our "conference." "To Jelfel, it would appear that we indeed fell into the sun; he'll think we're done with. I don't expect he'll try to read our minds to make certain we're dead—ten to one he'll take our extinguishment for granted. That, if only we could get back on fighting terms with him, leaves us free and unmolested. It's a great thought."

"Glad you see some occasion for optimism," Elna remarked tartly. "To be wandering in unknown space and time isn't my idea of a celebration. . . . Anybody got any really good suggestions to offer?"

"If only we could communicate with the Planet Brain!" I said reminiscently. "You remember, Elna—the Quintessence of Intellect? We encountered it in that other mad adventure when we were trying to overthrow Jelfel. . . . The Planet Brain; I believe it existed somewhere about this period in time, too. A world of pure intelligence. It even invited us to return and visit it if we ever needed to. I wonder what one ought to do to communicate with it?"

"That's a dead and forgotten experience," Frot said impatiently. "What we have got to do—"

He paused, and we all looked up sharply as into the utter space-silence of the chamber there slowly crept a deep, powerful humming note—something alien to our knowledge, that certainly had no equal in sound in any place we had ever known. We all waited in mute concentration, desiring to speak, yet held unaccountably spell-bound. Then quite suddenly—

A voice—a profoundly deep bass voice, each word cascading down into the depths of unknown harmonic abysses.

"Great heaven, the Voice!" I shouted hoarsely, recollection pouring into my mind. "The Voice of the Planet Brain!"

"You're right," Elna panted, recognising it at the same moment.

"My friends, you desire to communicate with the Brain?" the unthinkably deep voice inquired, from a space and dimension incomputable. "You have but to think of the Brain, place the frequency of your brain cells in sympathy with mine—as you have unwittingly done by even thinking of me—and I instantly understand you. . . . You are adrift in time and space again, I see. Poor, foolish children that you are. Well, I promised you

help once, if you ever needed it. You seem to need it now. What do you desire?"

"Help," I answered earnestly. "I need not explain to your all-comprehending intelligence; you know the position we are in, and why. Can you return us to our own space and time? We will not trouble you to do more—" I hesitated. "By the way, where is your situation at the moment?"

"Can that matter?" the Voice asked, its tones seeming to fill all space. "The actual situation of the Planet Brain is now forty thousand light centuries away from you, but to the impelling force of emission cells, upon which I once gave you a brief lecture, there is no limit. . . . So you desire to be returned to your own space and time? I cannot conceive a more elementary task. I take it the surgical operation I performed on your brain has long since passed away in its efficacious powers?"*

"Four years ago I returned to normal," I replied. "The effect, as you predicted, lasted long enough to enable me to fling my enemy's planet into the sun—with the aid of Anton Frot, here. Even so, Elnek Jelfel has returned."

"Ah, yes, Elnek Jelfel—the troublesome Jovian. I could, if I so wished, transform the four of you into pure invisible intellect; or could change Jelfel into a planet and hurl him, an expelled world, into the furthestmost reaches of the void. But, I have my own troubles; I do not desire to expend the effort necessary. Even a Brain has its problems, but with knowledge, my friends, comes pity. At first triumphant power as one gains a little knowledge—witness Jelfel—but with great intellectual power comes

kindness and compassion. I am compassionate to those who struggle for the right. You know that. For the second time in my existence I shall help you. I will replace you in your own time and space and make your machine air- and time-worthy, so that you may do as you wish. For myself, I may play a hand in this childish cosmic game. Briefly, I seek a mate. . . ."

"A—a what?" I asked dazedly.

"A mate. You earthly—planetary beings—take a mate if you desire one. Is it so very strange a planet should desire a mate—an intelligent planet, that is?"

"It's incredible!" I said with assurance.

"That, man, is purely your personal viewpoint. Remember, my friend, I was created in the first place by an ambitious chemist—I grew finally into a brain-world. I am purely chemical, seeking a chemical affinity. I seek a similar brain with whom to match my gathering power. I have hurled forth intelligence through the infinite—searching and probing for such a world—and I have found it. It exists in another time, but what is time to such a brain as I am? Its situation is five hundred million miles beyond Ondon, the planet of the exiled Jovians. There there exists another planetary brain. You would call it female; I call it opposite in intellectual power to myself, and opposite in chemical attraction. Hence we are reaching towards each other, and all the powers of time and space are set at naught. Already, the first communications have passed between us . . ."

"That, after all, is an affair of your own," said I. "All we seek is transportation back home. You of your own self will do anything else you wish."

*This I described in detail in "Liners of Time." S.L.

"Assuredly," the Voice agreed. "But when your battle is ended you will remember my words. For the time, at least, I leave you. . . ."

The Voice faded, and simultaneously the time-space machine seemed to move very slightly. Struck with a sudden thought I moved to the window and peered out on the darkness of space. My breath caught sharply in sheer amazement.

DIRECTLY in line with our vessel was the Ondonian solar system! Not more than a couple of million miles distant. We were progressing steadily towards it.

"Good heavens!" Frot ejaculated, looking over my shoulder. "You told me about that Planet Brain, but I never suspected it was capable of this sort of thing. We're heading straight for Ondon, back in correct Time again. What are you going to do, Lee? Turn back home?"

"No," I breathed. "I have a feeling that we can do more good here. That magnetism that Rath Granod is going to spread through the void—providing he hasn't done it already—to capture the Earth. We've got to stop it, on Ondon!"

"But that's crazy!" Elna protested. "We'll be caught and exterminated before we can do a thing!"

"On Ondon, yes," I answered, thinking swiftly. "But what about the other three planets? I don't see why we can't make headquarters—a sort of base—there. About three hundred thousand miles from Ondon itself."

"We have no provisions or anything," Ronnit complained.

"We've enough to last the four of us for two months in the provision chambers," I replied quietly. "If we run out we'll have to return to Earth

for supplies, that's all. What do you say?"

"Why not?" Elna muttered excitedly.

"We'll do it," said Frot decisively. "Lead on, Lee."

I turned to the controls, functioning perfectly thanks to the astounding intellect of the Planet Brain, and steered our course more accurately. Scarcely an hour later we were plunging through the dense atmosphere of Ondon's nearest neighbor. Below us, we had an evanescent glimpse of a frothing sea, in the midst of which reposed a Titanic island, furrowed with colossal, gaunt mountain ranges and abysses of enormous depth. With extreme difficulty I guided the vessel in the highest elevation of a bottomless gorge, tipped her nose down slightly, then at last came to rest on a small, flat and shingly plain. With a sigh of relief I slipped in the anchor-brake.

"I thought Ondon was a cheerless sort of hole, but this is worse," Elna said, with a shiver. "It seems somehow to strike horror into you. Look at it!"

The view admittedly was not enchanting. The towering pinnacles and crags far above us were etched out of the grey black sky—and, further to the right, lay the massive globe of Ondon itself (largest of the four planets) half of its bulk notched out with the sharp summits and buttresses of the mountain range. Before us was only the plain of stones and abysmal canyon.

"Looks like a graveyard," Lan Ronnit commented with a sniff.

"A queer world indeed," Frot remarked thoughtfully. "A dead one, from the looks of it. Better move on, I think."

"I'm not so sure," I replied slowly, staring hard through the window. "There seems to me to be something

very peculiar about this smaller world. Look outside—an odd, vibrating effect.”

Sure enough the phenomenon to which I had drawn attention was noticeable. A very faint apparent shifting of the mountain range was visible—akin to the effect seen on buildings when heat waves radiate from a street on a summer day.

I looked at the exterior gauge—an instrument for registering exterior air pressure, if any—and found the air density to be practically the same as upon Ondon itself.

“Well, if it is a dead world, it will hold our sort of life,” I answered. “Suppose we investigate this trembly effect?”

Carefully I opened the door; the denser air whistled inwards. For a moment we stood quite still, looking over the unthinkably repellent landscape, then an odd noise began to arrest our attention. A deep, strident roaring, remarkably similar to that of a pair of mammoth bellows at work.

“What the deuce—” I began; then immediately fell to the floor, flung there by the din of my own voice!

SORE and bruised, but completely mute, I got to my feet amidst the most unearthly row. Turning, I picked up a loose bar of metal from near the control board and hurled it outside. The instant the deafening whine of its passage through the air had ended in its fall to the ground outside, the space-time machine rocked as though with an explosion. Sound waves, colossal and overpowering, shattered through the air, nearly destroying our ear-drums with their incredible force.

“Shut the door,” Anton Frot wrote down, on a leaf from his eternal pocket book—and I was only too will-

ing to obey. Once the normal air of the chamber reverted—or at least, once we were shut out from the planet’s amazing atmospheric properties—normal sound reverted again.

“Did you ever in all your life—” I began dumbfoundedly.

Frot’s eyes were brightly gleaming. “Lee, I’ve got it!” he panted. “Sheer chance that we came here, I know, but it’s the final link. And not an impossible cosmic occurrence, either. A planet of sound, we might call this world. I thought when we went to Ondon there was something more than the dense air causing such remarkable sound effects. Evidently the entire Ondonian system is affected that way—this planet is steeped in sound radiation, and, mathematically, I can explain it to you.”

“But—our breathing at first!” Elna exclaimed in amazement. “It sounded like bellows! And when Sandy spoke—it flung him over. That metal bar you threw, Sandy—”

“Exactly! Exactly!” Frot answered tensely. “Listen, all of you. The amplitude of a vibration denotes the extent of the excursion of the particles of a medium from their mean position. The energy per unit volume, the intensity of the sound wave, is always proportional to the square of the amplitude. On this planet the high mountain ranges hold the sound vibrations—the dense atmosphere, too, hurls them back again. Besides that, the atmosphere must be highly energized to cause the amplification—or else, which is feasible, the sound particles themselves are larger! That problem I will solve later. The fact remains, it is no more unnatural for a planet to have natural acoustical properties than for the Earth to have hot-water springs. . . . But we’ve got the very thing I’ve been looking for! Those

magnetite crystals, the cores from the Ondonian puff-balls, and this planet's properties, being so near to Ondon, too, are all I want. . . . What we have got to do is to use these puff-ball cores as our fundamental, use this planet as a natural reflector—its sound properties anyhow—the magnetite crystals for magnetism to hurl the sound waves to Ondon—and there we have it."

"Have what?" asked Lan Ronnit, rather hazily.

"A sound vibration machine, of course. We must make this world a reflector."

"Reflect sound?"

"Certainly. Concave reflectors bring sound to a focus—you know that, and at the same time they concentrate the energy. You know, back on Earth, how we detect lost air-machines by detectors, which pick up the distant sound of the engines. . . . If this planet were of porous material the intensity of the reflected sound would, of course, be far less. The energy would be lost in the production of irregular molecular vibrations—transformed into heat, in fact."

"I grant you all this," said I. "But sound won't exist in the vacuum of space."

"You have me wrong," Frot replied patiently. "Not sound *itself*; sound *vibration*. That will pass through the void."

"Ah, I see. And you really think it can wreck Ondon?"

"Not Ondon—Zagribud. It might even hetrodyne the power of Rath Granod's magnetism that is shackling Earth and render it useless. We don't know until we experiment. . . . I have a lot to calculate. Sound undergoes changes in the air—heat and cold affect it—sometimes obliterate it. I have to overcome acoustical clouds,

zones of silence, lots of things. But before I'm through I'll make a weapon that will shatter Zagribud to dust!" Frot paused, his eyes still glowing with the light of discovery.

"For that, then, we'll have to return to Earth for equipment?" I enquired.

"I'm afraid so, but it's worth it. I shall want electric apparatus for setting up my machinery."

"All right," said I. "The sooner we get going the better."

I slipped in the controls again, and in another moment we were rising from that arid desolation towards the mountain tops. As we rose, the mighty globe of Ondon hovered into full view—a yellow world, a world of menace and destruction. I swung the ship around and moved towards it at right angles to obtain my bearings for Earth.

"It's certainly a good idea of yours, Frot," Lan Ronnit murmured. "I can give you a hand, I think. You'll want a sort of audio-frequency battery as well, won't you?"

"Split the atoms of the puff-ball sound core and release their sound energy particles, then amplify," the older man responded, and the two of them relapsed into a condition of quietly argumentative technical wrangling. I stood by my controls, Elna lounging at my side. Then as we swung nearer to Ondon a frown crossed my brow. Instead of drawing away from the planet with our Particle Disintegrators, we were heading towards it.

"That's infernally strange," I muttered. "We're going the wrong way!"

Frot and Ronnit looked up from the table; I saw a strange expression on the former's face. He came to my side and looked through the observation window long and earnestly, then gently snapped his fingers in the air.

"Damnation!" he said in alarm. "Lee, that attractive force hooking the Earth must be in action; we're being drawn by it now we've come into a line between Earth and Ondon! Being drawn . . . irresistibly towards Ondon."

"Good heavens, you mean that—" Elna began in horror.

"Figure! Compute!" I shouted hoarsely. "Anything! We can't let this happen now of all times! It'll cook our goose for good. Hurry!"

With desperate speed both Frot and Ronnit set to work to figure the matter out—the square of the energy, magnetism, that was drawing us compared to the propulsive force of our Particle Disintegrators. They looked up at last with hopeless faces.

"No good, Lee—we're outnumbered in power by ten thousand to one, figuratively speaking," Frot said. "It's we for Ondon, and nothing can stop it."

IN helpless stupor we watched the massive planet of Ondon approach ever nearer to us; with every passing second of the wall-chronometer our chances of escape were petering out . . . until at last we saw the planet no longer as a globe, but seemingly a mammoth bowl. The sky changed to the familiar grey-black.

We were dropping straight down into the area of a colossal lidless cube—that is to say an area of about ten miles width, composed apparently of seamless metal and walled on four sides—walls perhaps two hundred feet in height. Close to this massive affair lay a squat power-house tower.

As the vision swept imminently near I sprang to the control board and threw in the retarding machinery. The Disintegrators instantly fought desperately to hurl us away from

Ondon, and to a slight extent succeeded. At least it broke the violence of our arrival.

Falling into the shadow of one of the great walls, we presently struck the floor of the mighty magnet, were pitched helplessly sideways, our nerves and bodies shaken with the concussion. Dazedly we got to our feet. . . .

"The most immovable anchor ever made," Elna said, rather incongruously. "We're fixed to Ondon more tightly than any chains could hold us. I suppose we'd better be getting out. . . ."

"We might wait until the magnetism is shut off, then clear off," Ronnit remarked.

"At that rate we'd probably wait forever," Frot returned. "No, I'm in favor of an excursion outside."

"Nothing else for it," I said dubiously, and, a very dejected party, we flung open the door and descended to the shining metal of the magnet itself. Instantly I felt a most peculiar sensation come over me—a feeling that, although I could walk, I could not rise at all. I glanced up at the towering wall near which the space-time machine had fallen, remarked its perfect seamless smoothness, and then around at the remaining three walls in distant perspective. A tremendous distance away along the wall was a closed and, presumably, tightly bolted door.

"Great heavens, look here!" Elna exclaimed suddenly, her voice echoing in the dense air.

I turned towards her, and, to my amazement, she was standing at right angles to me, on the wall itself, her feet firmly anchored to the metal!

"Like a globule in a teacup!" she exclaimed with a laugh. "Now I know how an old time fly used to feel." She resumed an upright position and came clumping back towards us.

"Magnetism, of sorts — etherised magnetism," murmured Frot. "Does not electrocute, but makes human matter akin to drops of water on a smooth, quasi-absorbent surface. Cohesion—the law of forces—acting on humans owing to the magnetism's peculiar qualities, and also the nails in our boots. H'm, very instructive, I'm sure."

"What are we going to do besides being instructed?" Ronnit asked testily.

"Since we can't back out, we'll just have to go forward," I said worriedly. "We'd better follow Elna's shining example and—walk up the wall! Come on."

We did so, and the instant we were on the wall the gravitative force holding us to it changed our relationship with our surroundings amazingly. To us, the floor was then the wall, the time-space machine seeming to be hooked to it. Before us, apparently in the far distance, was a grey expanse—the sky! I do not recollect having so weird an adventure at any time before or since.

"Do you know," Frot murmured, as we progressed, "I'm beginning to think that this magnetized plating might have great possibilities. If only I could make some magnetized boots. Enable us to walk anywhere—anyhow. Darned useful, you know!"

I nodded. "We might find a chance later on. For the moment we have other things to face."

So eventually we came to the summit—or end—of the magnetized wall, crossed over the six foot edge, and down the other side. I was somewhat surprised to find that, at the vision of distant Zagribud and the horizon lying at right angles to me, I experienced no dizziness. Obviously the magnetism acted on all parts of the body, includ-

ing the fluid of balance within the ear.

At length we came to the ground, and started forward for, we knew not what adventures. Each of us was equally decided to trust to Providence to help us in our intentions to somehow try and stop the activities of the ruthless Ondonians. . . .

Then all our plans vanished abruptly into thin air, as, quite suddenly, a cordon of six guards appeared from behind the near-by power-house of the magnet. They advanced with their weapons, apparently ray-guns, levelled menacingly.

"Again, eh?" asked the centre-most, in Jovian—and I recognized him, to my alarm, as the one whom I had duped earlier in our experiences when I had rescued the five hundred Earthlings. "You must be lovers of death, Earthlings! This way!"

We had no alternative other than to obey. With weary feet we were escorted across the intervening stretch of rock-like plain, until at last we reached an isolated space at the exterior of a squat metal edifice. This space we found, upon closer inspection, to be nought but a barred expanse about ten feet wide, the bars themselves forming a complete frame—similar to a grid. Nearby, attached to the lock of this grid, was a peculiar, drum-like device. The guard-leader looked at this steadily for a moment, and to our astonishment the catch on the grid lock flew back. Certainly it was not my first experience with a thought-wave lock—I had encountered them before at Jelfel's hands—but that the lowly guard should be able to attune his brain vibrations to release a lock rather surprised me.

As I was considering, the heavy grille was pulled up, and below I beheld a sheer drop of about twenty feet into a well lined with the metal walls,

and possessing a floor smothered in metal filings and dust.

"A pit, Sandy," Elna breathed, peering down. "That doesn't bode well. . . ."

A movement of a button converted one of the walls into steps, and to these the guard motioned. I led the way down the staircase, and at length all of us were at the bottom of the twenty foot shaft, watching the thought-locking grille being drawn into position above us. The staircase abruptly snapped back into a smooth-faced wall. . . .

Lan Ronnit sighed despondently.

"If you can think of a bigger pickle than this, let's have it," he growled. "We—"

He paused and looked up as the guard's voice floated down to us. His face was framed between the bars.

"When His Serenity Rath Granod issues his orders, you will be removed—but until then you are only having the punishment vile Earthlings deserve," he said in Jovian, then with a short laugh vanished from view.

Elna put her back to the wall and slid slowly down into a sitting position. Frot began to slowly stroke his chin, deeply thoughtful; Ronnit watched him a trifle irritably. For my own part I paced up and down the confined space, totally at a loss. Indeed, it seemed, all our plans had ended in the most mortifying debacle. . . .

CHAPTER IX

THE STRUGGLE IN THE POWER-HOUSE

I HAVE no idea how long we all persued our own thoughts in complete silence. I continued to pace up and down, striving to see some light in the darkness, straining all my

mentality to conceive a way out of the difficulty, only to have to admit myself beaten in the end. Undoubtedly, so far, this was the most secure trap we'd fallen into!

"Well, we might as well make ourselves thoroughly at home," Elna said at last, with that calm, unshakeable philosophy of hers. "Here goes!" And she made herself more comfortable against the wall, stretching out her feet towards the opposite wall. I stood for a space absently regarding her heavy walking shoes, with the triple rows of metal studs along the soles—then presently they engaged my attention more closely. The metal sweepings on the floor were flying up to those boot-studs and adhering to them!

Struck with a sudden thought I lifted my own foot and planted it firmly on the wall. To my astonishment it adhered firmly to it, and I experienced the same pressure at removing it as I had done when walking down the wall of the super-magnet. Pulling my foot down again, I called the attention of Frot to the phenomenon.

Immediately he experimented with his own boots.

"Of course!" he exclaimed at last, looking up. "Magnetism! Even in the ordinary way a magnet imparts its magnetism, or some of it, to the object it magnetizes. As witness the magnetizing properties of a needle that has been adhering to a magnet for some time. The magnetism of that wall is on our shoe nails—far stronger than ordinary magnetism. By Jove, what a chance! If I can get a look at that thought-wave lock above, I believe I might be able to devise a means of opening it. Might at least compute the necessary mental formula."

So saying he again tested the power of his boots on the wall, found they

held him quite steady, and immediately slowly walked up sideways to the bars above. Once he had grasped them, we breathed a sigh of relief. For a long time he was poised there, studying the thought-wave lock's intricacies, then he came down again by the same odd method.

"Later I'll analyze why this magnetism is so powerful, and how long it is likely to last," he remarked. "For the moment, that lock interests me. It's of the most elementary type—that is to say, must respond to the most elementary thought-waves. Its wards are composed of solid iridium, and the actuating force is purely a series of fine mica squares, with a central pivot to each, and each square of a different thickness. In all there are three squares. These, when swivelled over by the vibrations of thought-waves, release the wards, and the lock is free. What we have to do is to compute what power of thought-waves are needed to swing over those three mica squares. Every thought-wave has a different rate of vibration, must have—so computation should give us the answer."

"Since there are millions of possible thought-waves that won't be easy," I remarked.

"Not altogether, Lee. To a certain extent, from our own earthly experiences, we know that the average of thought-waves is about 120,000 to 150,000 frequencies a second—that is amongst the highly trained, civilized beings. These guards are a lower type. I place their highest frequencies in the area of 100,000 to 115,000. Now, Ronnit, help me to calculate possible vibrations amongst those numbers that could swing over mica strips which are so thin as to be almost two dimensional. . . ."

Instantly Frot's notebook and elec-

tric pen came out. Whilst he figured, Ronnit made mental calculations, and between them they built up the most extraordinary series of mathematical formulae I ever beheld. . . . And as they figured, slow darkness began to creep over the face of Ondon; it was nearing sunset. With the evening the air began to become chilly; a dewy, misty quality came into the atmosphere—no doubt the condensation of the heat from the day-scorched ground in the cold air of the night. Whatever it was, little streamers of mist slowly began to swirl about the bars above our heads.

Then at last Frot jumped forward in the fading light, clutching my arm.

"Lee, I believe I've got it! A thought-wave series of frequencies lying approximately at 113,000 has sufficient power, according to the square of the area, to turn over those mica squares. That thought-wave series in letters would be R-A-N—ran. In thought, though, it is the frequency that counts. A silly word, I know, but do you know if it exists in the Jovian language?"

"R-A-N," I repeated thoughtfully, feeling sure I knew the word, apart from its natural implication of the past tense of "run." Then abruptly I remembered—a long past conversation with Jelfel in my early adventures with him.

"Why, yes, Frot!" I said at last. "'Ran' was the name the Jovians had for Jupiter, the name of their planet. I believe you've hit it! Let's see. . . ."

I accompanied him up the wall to the bars. Once there we beheld the lock through the rapidly thickening mists. Together we hurled the three independent thought-waves R . . . A . . . N . . . upon the delicate machinery. For an instant nothing seemed to happen, then there was a

dull click—the iralium wards slid to one side as the mica squares revolved rapidly like the flywheel fan in the striking mechanism of a clock.

"You were right, Frot!" I breathed. "Great work! This mist, too—a gift of the gods, indeed. Give me a hand to get this grille up. Heh! You two down there. Come on!"

ELNA and Ronnit soon joined us, and under our united efforts the massive square of bars was lifted high enough to permit us of crawling out beneath the edge, one by one. When at last we were free, Frot went closer to the amazing thought-lock and we found that the impulse of R A N both locked and unlocked it. For a space we continued to watch the wards slide up and down under the impulse of our thoughts, amused oddly by the effect. Then, the danger of our position again taking hold of our minds we made our way into the thickening mist and darkness.

"Where now?" asked Frot, streamers of mist clinging to his thinning hair.

"We'd better—" I began, then I paused and whispered for silence as voices made themselves apparent—voices in the Jovian language, which Frot and I, of course, readily understood. . . .

There came a sharp exclamation of alarm, a sudden babble of excitement, then a calm, high-pitched voice which I instantly recognized. Rath Granod himself!

"I might have known a guard could not be credited with such intelligence as to trap four dangerous Earthlings," he said bitterly. "Nard-Som, you are an idiot—you must be, or you wouldn't be merely a guard! This punishment chamber is empty, the thought lock is tightly fastened. Earthlings are solid,

not gaseous beings; they could not float away!"

"But, Master, we did put them there! I swear it! Nal-Isal here, will bear witness!"

"It is true, Master," confirmed another voice, presumably Nal-Isal's. "We placed them here and hurried into your august presence with all speed, that we might engage your supreme attention the moment your communications with earth had ended. In the meantime, the Earthlings have again escaped us—"

"Silence, little brained fool! Elnek Jelfel himself told me the Earthlings have gone to their deaths—the four enemy Earthlings at least. They were flung into the sun. Our ambassador himself did it—saw them go. How could they have appeared on Ondon?"

"But, Master—" entreated the hapless, baffled Nard-Som.

"Silence! You have dragged me here on a false mission, a pretext. I am none too sure but what you have a rebellious motive in so doing; there are many rumors of unrest amongst the masses. The way of Rath Granod is to exterminate blunderers!"

"Supreme One! All Wise! I beg of you—come to the terrestrial magnet and see for yourself the time-space machine in which the Earthlings came. It lies there, immovably held to the magnet floor."

A cynical laugh escaped the ruler of Ondon. "Another fool's delusion, eh? Or else a trap! No, Nard-Som, your work is ended—yours too, Nal-Isal. I have no further use for such as you!"

The voices ceased, and in the darkness and mist something suddenly flashed into life and was gone. Followed the thud of two bodies falling to the ground, then the slowly retreat-

ing footfalls of the Supreme One, and, presumably, of his accompanying retinue.

"Heaven bless the dense air," I murmured at length. "And also Jelfel's firm conviction that we are dead. We're comparatively free at last. . . . Come, let's see what happened to those poor devils of guards."

Cautiously we moved through the mist, until presently we stumbled over the two bodies in question. In the faintly reflected light from the city shining through the mists we beheld the dead forms of Nard-Som and Nal-Isal, obviously destroyed by some deadly weapon or other.

"What a chance!" I muttered. "I believe I can make good use of my face again. See, one of these uniforms. The upper parts fit well—the lower part seems to be a sort of skirt, hiding even the feet. If I walk in a crouching position, I might pass as a Jovian guard. What say you?"

"It's worth trying, anyhow," answered Ronnit. "I'll give you a hand, Lee."

Rapidly we stripped the dead guard of his uniform, which I fixed over my own suiting to take up the slight extra shoulder bulk. To my satisfaction the skirt part fell well below my feet. . . . Dropping into a squatting position my appearance was at least Jovian, if my intentions were not. . . .

"You're wrong in the arms," Elna commented. "You've only got two arms—these adorable creatures have four—and tentaculate hands."

"That fact won't be noticed in the darkness," I answered. "I shall do all I need to do before that fact is discovered. . . . Now, the next job is to drag this Jovian—the one whose uniform we have not taken, that is—to the power-house. I've got an idea. Lend a hand."

Between us we carried the dead Jovian, and left the stripped one behind in the dark. Presently we laid our burden down outside the door of the great magnet power-house. I hesitated for a moment, screwing up my courage, then knocked heavily on the portal, my three companions hidden in the mists behind.

Presently the door opened—a shaft of powerful light streamed into the vapors outside.

"What's the matter?" asked a Jovian mechanic, looking out with his baleful green eyes.

I nodded towards the dead Jovian.

"The Supreme One's orders—the Earthlings are abroad again—have killed Nard-Som whom you see there," I responded, in his own language. "I have been sent from headquarters to summon all workers to search for the Earthling scum. Come—every man of you. The magnet will look after itself. . . ."

The Jovian nodded, looked down at Nard-Som, then re-entered the building. Obviously he was not in the least suspicious of me; nor had he reason to be. I kept my arms hidden in the gloom, and my appearance, sitting uncomfortably on my heels, was exactly that of a Jovian guard.

"That way!" I commanded, when at last the power-house engineers came into view and out into the mist. "You are to take that direction; I have a party to lead over here. Do not give up until the Earthlings are found, or you will answer, as will I, to Rath Granod!"

"Never fear—Rath Granod is too ruthless to disobey," returned the leading mechanic, rather enigmatically, and then set off resolutely into the mist with his band of many-legged colleagues. . . . In another moment I was inside the power-house with my

companions, and had shut and bolted the massive, current-proof door.

"Stout work!" exclaimed Elna delightedly. "What's next?"

I straightened up actively. "We've got the power-house to ourselves; the place which generates the magnetism to shackle the earth. If we can throw it out of commission, we'll be able to stop the power—"

"You think you will," said a grim Jovian voice behind us, and turning in dismay we beheld a Jovian guard standing on the engine-balcony above us, his ray gun levelled. "Make one move, and you are atoms," he said menacingly, slowly making his way to the stairs. "You don't think this power-house is left absolutely empty, do you, fools?"

I thought fast. Once again we were in a difficult position. Surrounded by the wherewithal for stopping the doom of a planet, yet held from it by the power of an unthinkable deadly ray-gun. The four of us stood silent as he approached us, each, I think, using our wits to the utmost. . . . Then suddenly I had an inspiration. It was courting death to test it, but it might work. Instantly I acted and hurled myself at the guard.

His ray-gun pointed directly at me, he pressed the button, but nothing happened. Completely bewildered by the non-effectuality of his weapon it was a simple matter for me to hurl him mightily to the floor.

Even as I did so another guard and two electricians—or mechanics—appeared on the balcony above.

"Fight them!" I shouted hoarsely. "The ray-guns are useless—we're Earthly composition, not Jovian. Therefore we're safe—just as Jovian matter is safe from an Earthly disintegrator. Pile into them. . . ."

It was indeed a fact. The ray-guns,

tuned to Jovian atomic structure, were useless against us, and a battle royal began in the giant power-house, accompanied by the deep roaring of the colossal generators and magnetic transformers.

Although I had my hands full with my own particular guard, I beheld Ronnit, Elna and Frot putting up a most amazing display, overcoming the Jovians mainly by again using the expedient of the magnetised boots—which effect showed no signs of wearing off. On the floor, it being stone, there was no magnetism, but we had the advantage of being able to attack from the walls and pillars, from most impossible angles. I beheld Frot sideways seizing his aggressor's throat in powerful, sinewy fingers; Ronnit was in a similar position upon a pillar. Elna was up on the balcony, exerting all her force to overcome the guard who was gradually overpowering her by superior muscular power.

My observation of this fact lent me sudden superhuman strength, hampered though I was with the additional gravitation of the planet itself. I dodged one of my opponent's rushing charges and delivered a blow clean in the centre of his throat. The result was amazing; evidently I had found an unsuspected vital spot. The creature reeled about, gasping mightily, made a last clawing effort to reach me, and then sprawled motionless on the stone floor. A rapid examination revealed that he was dead.

Instantly I raced to Elna's assistance. I walked up the nearest pillar, gained the balcony floor, and prepared myself for action. Like a battering ram I shot forth my fist, and behind it was all the weight of my body, doubly heavy with the gravitation. The blow caught the Jovian under the chin. . . . With a piercing scream he

released his grip on Elna, toppled helplessly over the balcony rail and clean into the centre of a mass of glowing wire-wound mesh immediately below.

Instantly amazing things began to occur. Blue flashes sprang from unexpected points of the power-house. The hapless guard himself vanished in a sheet of liquid fire; his ashes cascaded down on the stone below. The wires that had held him warped like threads of cotton. With an ear-splitting report a curious square object in the distance—probably some type of super-fuse box—blew itself into fragments and bars of metal came sailing through the air.

Subconsciously I became aware that the noise of the machinery had ceased. By sheer chance it had been short-circuited by the guard's body falling into a vital part; we had come to stop the mechanism, and a fight had done it for us! But I was too busy then to think of the details.

Elna and I climbed over the rail and down to the floor again. Between the four of us the two remaining electricians stood but little chance. In the space of a desperate four minutes we had shackled them together with their own uniform belts. They lay on the floor, glaring up at us, and muttering dire Jovian threats. . . .

CHAPTER X

JOVIAN ALLIES

"PHEW!" Lan Ronnit whistled, wiping his face with the back of his sleeve. "That was warm work while it lasted. Looks as though we've had everything done for us, Lee. Where do we go from here?"

I looked thoughtfully about me. "I don't see leaving things like this," I

answered quietly. "This magnet will soon be repaired with such men as Rath Granod about. We ought to stay and either turn all this apparatus to our own account somehow, or else destroy it beyond repair. . . . Then it will be re-built. It's a problem, you know."

"The point is, how long can we hold out against this lot?" Elna demanded.

"Wouldn't it be safer to get back to Earth whilst we have the chance?" Frot enquired.

"I don't see why, Frot," I returned. "We can't do anything by going back to Earth; all the damage is being done here."

"True, but I was thinking of material for my sound-projector."

"Well, can't you hunt up something in this place? There's enough electrical stuff about, surely?"

"Now you mention it, I do believe the place has possibilities," he conceded gravely, and proceeded to stroll amongst the mighty, but now happily silent, engines.

I turned back to the bound electricians, "Say, you two—any food on the premises?"

"We tell you that?" one of them sneered. "What do you think we are?"

"You can either tell me, or have it hammered out of you," I returned grimly. "Which is it to be?" I clenched my fist threateningly.

"Oh, tell him," growled the other. "What's the difference? We don't get much honour for our job, anyhow. You'll find food in that apartment there, Earthling—that doorway over there. We live on the premises."

"Good. . . ." I was about to turn away from them, then a remembrance of the electrician's words brought me back again. "What do you mean?—you don't get much honour?" I asked.

"Merely that we don't care what

you do," was the growling response. "If we do anything clever, we are cynically applauded; if we do anything wrong, we're just killed—that's all. Such is the justice of the Supreme One, Rath Granod. The—" He added a string of scorching Jovian epithets.

"It is not the way of an Earthling to kill unless he is forced," I said quietly. "The deaths of your two fellows were pure accidents. True, you have your duty to do, but so have I—to my planet. If, though, you choose to throw in your lot with me, you will not regret it so far as I can help it. At the least, you will not suffer the punishment Rath Granod is liable to mete out to you for allowing us to capture this place. What do you think?"

The two considered. As I have mentioned before, they were not brutal fellows like the guards; merely highly intelligent workmen, far above the cleverest Earthling born, yet all the same nowhere near the uncanny perfection of Granod or Jelfel.

"Well, since it means death for neglect of duty—that's what Granod will call it—there's no reason why we shouldn't help you and have a chance for our lives," the one who had first spoken answered. "What do you say, Rof-Elsor?"

"I agree. I never did agree with this vile plan to change our brains into other bodies! It is not science—it is massacre of the *n*th degree. All right, Earthling, we are with you—but only on the condition that no harm, so far as you can avert it, befalls us."

"You have my word," I answered quietly, and with that unfastened the belts that pinioned them. They stood up to their normal three feet of height and motioned me to follow them. Frot discontinued his thoughtful tour of the machinery to join me, and pres-

ently all of us entered neat, living quarters.

"If it's food you want, here you are," Rof-Elsor remarked, and placed before us on the low-built table typical Jovian fare. . . . The two creatures watched us as we hungrily ate, then, finishing the meal with a draught of peculiar liquid more like black coffee than anything else, we turned our minds to the troubles that faced us.

"What particularly are your plans?" Rof-Elsor enquired.

I shrugged slightly. "I hardly know. We've stopped the Earth magnet—that's one good thing. What we need to do is to completely wreck it. We want also to destroy Zagribud and all the devils who run it—we must obliterate Elnek Jelfel—and wipe out the very name of Jovian science from the face of the universe."

"So it ought to be," Rof-Elsor muttered, much to my surprise.

He saw our somewhat sceptical expressions, smiled faintly, and drew up a special Jovian chair to the table, motioning his companion—who possessed the remarkable name of Zan-Kafod—to do likewise.

"That a man belongs to a race like the Raniens—the Jovians—is his parents' fault," he said grimly. "If your earth chiefs indulged in massacre of another world, you would not agree with them because you happened to be an Earthling, would you? Of the same race?" His big green eyes looked at each of us, full of appeal.

"Of course not," I answered. "Insane fools on Earth start wars—which bring ruin and desolation and destruction to a perhaps thriving community. Men join in these wars—nearly every one disagreeing with the very idea of war—but forced to fight because of the diseased brains of those that started it. . . ."

"I see," Rof-Elzor said thoughtfully. "So indeed it is on Ondon here.—Zan-Kafod and I are alike in our views. Both our respective parents have been murdered in the past for some heinous scientific experiment by this overpowering devil Rath Granod, and his ambassador and Adviser-in-Chief, Elnek Jelfel. I hate him—Garnod—all the workers of Zagribud hate him. We have tried to rebel, and failed—"

"I have heard Granod make an allusion to that. . . ." I murmured.

"We hated him on our own world of Ran before it was flung into the sun and this vast cosmic journey was made to Ondon here—and we still hate him and all his works! If you have any plan to destroy these devils, we will help—all the workers of Zagribud will help. Anything, that we may escape the villainies, the atrocities, and the murderous experiments of this all-intellectual monster, Rath Granod!"

Rof-Elzor paused, incensed by his own furious outbursts; then he was calm again.

"You have, for instance, suggested wrecking this power-house. That would be a silly thing to do. Better to use its almost limitless powers as a weapon of some kind."

"Limitless powers?" I repeated.

"Certainly. Don't you realise that this power-house converts every known etheric vibration into magnetism, and then increases the actual magnetism by millions of times its actual output by further inflows of what Granod calls space-energy?"

"No—I didn't know that," I responded. "Frot, you'll follow this better than me."

"I am doing so," he said methodically. "Proceed, Rof-Elzor."

"**R**ATH GRANOD'S machinery absorbs all the vibrations of ether—which include light, infra-red, ultra-violet, all the spectrum colours, and the energy of the electromagnetic ether itself. The atoms composing these vibrations are rendered deficient in some of their electrons—the result of which is to produce high electrical positive charges in those atoms. In the ordinary way such an atom would of course collect stray electrons and restore its equilibrium, but Granod's machinery is so constructed as to prevent that taking place; beams of force prevent the begetting of stray electrons and also the combining with other stray atoms, oppositely charged, which would result in a compound molecule."

"In that case then such atoms are called 'ions' on Earth," Frot commented.

The Jovian nodded. "You will know, then, that such an atom is easily guided and propelled. Hence, every scrap of magnetic energy we use—the converted vibrations I mentioned—are composed of highly charged unbalanced positive atoms—countless tens of millions of them. Now, upon Earth, Jelfel has erected a similar equipment, but all his apparatus draws the magnetism of Earth itself into a whole, which is a negative attraction. Hence, the positive atoms of our magnetism seek to unite with those of the Earth, and so terrific is the attraction the effect is palpable even across the gulf of space, and will inevitably result in finally dragging Earth to Ondon. . . . For the time being that has been stopped, but I can't see why all this terrific positive energy can't be converted into other uses. . . . Of course, our magnet is made so that it follows earth on its journey through space; I forgot to mention that. That

magnet, though, ought to be used as a propulsor, by conversion, or something—"

"Great heavens, I've got it!" shouted Frot abruptly, his voice jubilant.

We looked at him in surprise, as he turned to the Jovian, his eyes gleaming.

"Rof-Elsor, you have supplied the solution to my problem! How to transport very heavy electrical equipment across space from here to one of your neighbouring worlds. We can't drag the stuff into space because of the terrific power needed to gain our initial start from Ondon. Jelfel, in his case, got his machinery from Ondon to Earth by some method best known to himself, but I can use another method—transport my machinery to this neighbouring planet by changing the magnet into a propulsor of sorts. . . . Listen, I'm planning a sound-destroyer—to shatter Zagribud with sound. Is the idea practicable?"

"I don't see why not," Rof-Elsor replied. "Paliso, one of our neighbouring worlds, is a planet of natural acoustics. Is that the one you mean?"

"That's it! Also, I propose to convert the sound of some of your screaming Ondonian puff-balls into the ultimate of sound—that is, get from the sound the essence of noise-vibration, so to speak—as one can get pure energy from an atom of matter."

"Quite possible—quite possible," conceded the Jovian electrician thoughtfully. "And use Paliso for the purpose! Indeed a masterly idea! For that purpose, then, you will require an atom-splitter, a sound reflector, generators, and directional beam machines—all of which are in the power-house itself. We will set about calculating how to convert the magnetism into repulsion; it shouldn't be difficult. All electrical law can be reversed—

especially with the ether as the medium."

"All this is very well," said I, "but how are we going to do it? I'm expecting the other power-house workers back any minute after searching futilely on the errand I sent them on. What's going to happen then?"

Rof-Elsor smiled reassuringly. "I have said that all the workers hate Rath Granod—wish more than anything else to exterminate him. I will talk with them; I have little fear but what I can win them over to your side. If I can do that, you will have a willing army of helpers in your endeavours. . . ."

Rof-Elsor had scarcely finished speaking before there came a sudden mighty commotion upon the distant door of the power-house. He rose to his feet with a twisted smile.

"Better come with me, Earthlings. My colleagues have returned."

We accompanied him into the machinery-filled hall, then waited expectantly as he opened the massive door and admitted his fellows. Instantly, the man who I had first enticed out of the power-house, pointed an accusing tentacle at me.

"There he is—the Earthling! And his fellow-Earthlings. Rof-Elsor, what does this mean?"

"Hi-Tum, the Earthlings are our friends. They have told me much; they plan to destroy accursed Zagribud, and to obliterate the accursed Serenity who subjects our lives. I have thrown in my lot with them—me and Zan-Kafod."

Hi-Tum seemed uncertain; his fellows muttered amongst themselves, their green eyes upon us. Then presently Hi-Tum regarded Zan-Kafod.

"Is this true, Zan-Kafod?" he asked quietly.

The Jovian nodded. "We all have a

grudge against Rath Granod, Hi-Tum. I seek revenge for my murdered parents—so does Rof-Elzor. You have a motive; all of you! This very powerhouse which we control is the disseminator of death and destruction. I say, into the dust with Rath Granod, Elnek Jelfel, and all their accursed minions and servants! Rath Granod leaves us in peace here because he knows we dare do nought but obey: with the coming of the Earthlings, it is different. We hold a master card."

Again Hi-Tum considered. "I must confess I would welcome a return of the Rasimov Dynasty,"* he commented thoughtfully. "We could again give our fellows their birthright." He stopped, then made a curious obeisance that I recognised as being a Jovian salutation of high respect "Earthlings, you have my allegiance!" he said quietly, raising his tentaculate hand. "What of you, my comrades?" He looked about him.

"Yes, make Rath Granod eat the dirt of his own hell planet!"

"So be it," Hi-Tum murmured, and with that the odd little ceremony was over. I breathed more freely. We had gathered together an array of willing helpers—not so much wishing to aid us as to avenge themselves.

"We had better lay our plans," remarked Rof-Elzor. "It is distinctly probable that Rath Granod may send a scout to discover why the magnet has ceased to function. We are now declaring open war on Rath Granod; those who attempt to interfere must be instantly destroyed." He turned to Anton Frot. "You, Earthling, are a mathematician. You can help me plan a force ray to withhold intending attackers from this powerhouse, whilst

we lay our plans for the Paliso sound-projector. Let me show you."

WE followed him through the wilderness of engines until we came at last to an instrument resembling, more than anything, a gigantic electric torch. It possessed no lenses—only two dull gray wires almost touching in the center of a sunken concave plate.

"I've been thinking, my friends, of a better way for sending your machinery to Paliso than using the magnet itself, converted," Rof-Elzor said. This instrument here—a force-projector—has a twin in another part of the building; but first I'll explain this to you. You have heard of atom-disruptors, molecule shatterers, and so on . . . This force-projector is the prince of them all. I have explained to you how Rath Granod absorbs the vibrations of ether—of space. This machine concentrates all those vibrations and turns them into one composite force of unthinkable power, which, in turn is projected into that transformer you see over there. When this machinery is working there exists in the gap between the transformer and this force-projector an invisible stream of colossal energy, which, upon reaching the transformer passes through various processes and is finally converted into magnetism. Now, there being two of these force-projectors, I propose we use them for a two-fold purpose. One, to project your machinery to Paliso for your sound-projector, and the other one for a defensive for the powerhouse itself. Thuswise we can continue with our plans uninterrupted. Nobody can get past this."

"At that rate you could shatter Zagribud with that alone," I remarked.

"Unfortunately no. Rath Granod

* The Rasimov Dynasty, I found, implied a period in Jovian history when the Workers overcame the Intellectuals, but were soon vanquished. S.L.

has thought of that possibility and has an offsetting machine to destroy such effect. He prepared that in case we rebelled and made an attack on the city—but he has no safeguard against sound vibration. In fact, I do not think such a possibility has ever entered his calculations. . . . However, this force propulsor is a perfect weapon. I suggest we place it on the platform of the tower."

"Excellent," agreed Zan-Kafod, and immediately the little party of experts set to work to release the mechanism from its supports—all save Hi-Tum. We wandered about with the air of a technician, pulling wires here and there, and tightening up bolts in obscure corners of the machines. He returned presently.

"The main bulk of the machinery is out of commission," he remarked. "I have, however, repaired the damage far enough to permit of the force-projectors working all right."

By this time the force-projector had been moved from its supports—supports that were easily unscrewed, yet as powerfully solid as the ground itself when in position. Rof-Elzor examined the long stretch of wiring leading to the instrument.

"The wires are in order," he remarked. "This length should extend up to the platform from here. Come, Earthlings, assist us."

We turned to commence the feat, when suddenly to our amazement the power-house door flew open beneath the impact of some terrific force or other. We looked round in surprise, then in complete alarm as none other than Rath Granod himself and a party of his advisers and emissaries entered, their ray-guns levelled.

"So, this is what transpires in the power-house?" Rath-Granod asked, in his softest and most deadly tones,

walking forward. "Rebellion! The magnet has been stopped—Elnek Jelfel informs me that the stoppage of the power has resulted in the Earth falling back into its former position. There have been landslides, terrific storms, tidal waves—occasioned by the stress. Countless thousands of Earthlings who might have been of use as brain-carriers have been drowned, maimed and destroyed. Unthinkable fools! Why have you so ruined my plans?" His boring green eyes moved to we four Earthlings.

"Ah, of course, the Earthlings!" he commented bitterly. "The reason is now obvious! So that fool Nard-Som did speak the truth. You *have* come to Ondon! How you eluded my equal in intellect, Elnek Jelfel, I can barely conceive—but I do realize that you are all looking your last on this side of death. Ready—men! Destroy this group and have fresh men immediately set to work to remedy defects."

"So be it, Your Serenity," answered his nearest adviser, levelling his ray-gun.

I waited with a grim smile, knowing the ray-gun could not affect us four Earthlings—then suddenly with a lightning movement Rof-Elzor flicked a switch on the top of the force-projector, by which he was standing. Being almost hidden by my larger body, his movement was unnoticed.

That which followed was the most incredible, nauseating sight I ever witnessed.

That beam of etheric force, linked up with the absorbers of the space-energy, impinged directly upon the eight Jovians. They staggered slightly, but did not disintegrate as I expected. Instead they seemed to melt—run, is the only word for it—like figures made of tallow. They tried to move and could not. They were literal-

ly converted into *heat*! They glowed; their faces ran and smeared like wax masks. They uttered the most unearthly screams and yells. I began to feel oddly sick, hardened though I am to the unusual. I beheld the faces of my companions drawn with horror at the sight, particularly Elna, who was as pale as a sheet, cool and collected girl though she usually was.

Rapidly Rath Granod and his minions trickled, and finally actually boiled! They became standing, immovable effigies of frothing incandescence—white-hot entities. Then—disruption! A cascading shower of boiling fire shot into the air as the entire party passed into a gaseous state. We were flung over with the shock, and when we looked again the space was empty! The stone floor was slightly discolored—beyond was the open door.

Rath Granod had ceased to be. His amazing mind, his advisors, everything, had been completely destroyed.

"Great heaven!" Lan Ronnit whispered, "This *will* unleash all the devils of the cosmos! Rath Granod wiped out—the Master of Zagribud."

Rof-Elsor switched off the force-projector with a shaking tentacle.

"If it's war we must attack first," he said, in a slightly scared voice. "There is only one man to equal Rath Granod—indeed exceed him—and that is Jelfel himself. If he comes to Ondon he will leave nothing unturned to rout us out, destroy us, and carry on from where Granod left off. . . . Quickly, shut the door. We must get this machine to the tower to ward off attackers."

The door could only be kept closed by a couple of force rays playing on either side of it. These, however, kept it effectually in position.

WE accomplished the task of carrying the extremely heavy force-projector to the narrow platform of the power-house tower by means of levitators—curious vacuum suction tubes which exerted their lifting effect through the medium of circular shafts. The machine was rolled to the bottom of one of these shafts and the suction drew it aloft. Hence, when we arrived on the platform it was there, waiting for us to lever it into position.

The mists of the evening had vanished now and the still Ondonian night had arrived. I was impressed for a space by the view of Paliso itself, and Ramino, its neighboring planet, within close proximity. The other planet of the system, Famino, was below the horizon. Used as I was to seeing new skies, there was something different about that sky of Ondon. In some odd way, it was oppressive, sinister. The phrase "a cruel sky," does, I know, sound absurd—yet that was just how I felt about it. . . . One particular planet, a considerable distance away, appearing something like an overgrown Venus as seen from Earth, arrested my attention off to the East. I mentioned it to Rof-Elsor as we turned toward the force-projector.

"Queer," he murmured, staring away at it. "I never saw that world before! Is it a planet or a star? Looks like a planet. . . ."

"There's another one over there," said Frot dispassionately, nodding westwards.

We turned, and sure enough in the western sky, about the same size, lay another brightly gleaming planet.

Rof-Elsor shook his head dubiously. "There is something here I cannot understand," he said. "Two new-born worlds. Certainly I've never seen them before, and I very frequently

survey the heavens. After all, what matters it?"

We turned to our task, the incident forgotten for the time being, and presently succeeded in securing the force-projector at the edge of the platform, so that we could turn it in any direction on the ground below. I looked at the wires leading back to the machinery-filled rooms below. With a grim smile I reflected that it would be distinctly unhealthy for any invaders who tried to storm the power-house.

As I looked at the distant mass of Zagribud, a gleaming wilderness of lights, a city of super-science, an idea occurred to me. I took hold of Rof-Elson's shoulder.

"Rof-Elson, do you know anything about the machinery with which Earthlings are held in a wrong period of time?"

He shook his head. "No, Earthling. There you are in waters too deep for my brain to comprehend. I only know that the machinery lies in Zagribud itself, along with the sixth-dimensional Rotator, and the radio-system for communicating with Jelfel. To get at it is impossible."

I clenched my fist. "If only I could get at that machinery," I muttered.

"Forget it for the time being, Sandy," Elna said, taking my arm. "We may get a chance later on. For the time being let's concentrate on Frot's idea."

"You're probably right," I assented, shrugging; then, all of us satisfied that work was complete on the platform, we returned downstairs, save Zan-Kafod, who elected to stay behind to watch for possible intruders.

In the small living quarters again we gathered around the table, a little knot of intent conspirators.

"We have little more to do on this planet beyond projecting my machinery to Paliso," Frot remarked. "I have my plans fairly well laid, but I'll not experiment until I reach Paliso itself. Once there we can make the time-space machine, in which we'll go, our base. The magnet being out of commission our vessel will rise as easily as ever, of course. I propose starting the projection of the equipment tomorrow night. What do you say?"

Rof-Elson nodded. "The sooner the better. The death of Rath Granod will soon bring a host of vengeful advisers down on our heads. I have a haunting fear, too, that Jelfel will return to Ondon the moment he knows what has happened—"

"Once that happens we can expect trouble with a capital T," I said grimly. "Rath Granod may have been the ruler of Zagribud, but Jelfel, in my estimation, is far more clever and far more ruthless. The sooner I have the ground of Paliso under my feet, the better I will like it."

"There is one saving grace about it, if Jelfel does come back," Ronnit observed. "He will have to leave his Earth headquarters, and incidentally his magnetizing device for drawing Earth to Ondon. That makes Earth safe."

"It may do!" said Elna dubiously, shaking her head. "Jelfel won't be so childish as that, I'm sure. . . . We ought to do something with the magnet here, to stop it being used."

"There is nothing that can be done that would be effective," I answered. "Even if we destroyed it, Jelfel would rebuild it on his return. No, we'll leave that for the time being. If we can destroy Zagribud, the magnet will go with it—so it is as broad as long."

"And again, that magnet can only be operated from this power-house,"

remarked Frot. "Therefore, with the place guarded by a force-projector, the magnet in truth is nought but a white elephant."

"Truly. . . ." I stretched my arms and yawned. "Well, since all that is arranged for the time being I'm going to have a rest. I'm about dead beat. . . ."

CHAPTER XI

THE RETURN TO EARTH

THE following day, curiously enough, passed entirely without untoward incident, so far as hostile visits were concerned. In relays, the Jovians guarded the powerhouse from the platform, but there was no evidence of attack. Either the advisers of Rath Granod had not learned of his death, or only suspected it—or else they had other and more subtle plans. I did not know. . . . But I felt uncomfortable at the calmness. It presented the aspect of a trap somewhere.

We pushed on with all speed in erecting the second force-projector, this time on the floor directly beneath a clear stretch of the engine-balcony. Above the clear stretch on the balcony was a movable portion of roof. Frot had planned, therefore, that his machinery could be placed on the clear stretch of the balcony, and hurled through the opening in the roof by the force of the projector on the floor below—the force passing through the iralium of which the power-house was composed—and so to Paliso, which seemed to me a remarkably good idea.

So, whilst Rof-Elsor and his colleague, Zan-Kafod, spent the day, in company with Hi-Tum, lifting the necessary machinery to the balcony floor by means of the vacuum levita-

tors, Anton Frot became immersed in his beloved mathematics, first charting how to throw his machinery to Paliso with accuracy.

"It won't be so difficult," he commented toward mid-morning, appearing in our midst with his inevitable notebook and electric pen in his sinewy hand. "The machines, which will hold in one bulk by magnets, will overcome the force of Ondon's gravitation in relation to the force expended upon them. Just a simple problem in momentum and inertia—h'm, most interesting indeed. The field of attraction from Paliso rapidly reaches into that of Ondon. So, we have a use for the giant magnet after all. Once the machinery has passed the dividing line in space and has fallen into Paliso's field of attraction, it must be slowed down by the pull of the giant magnet, otherwise my apparatus will crash into Paliso and be reduced to dust. The magnet must be altered to follow Paliso instead of Earth, and must be put into working order. Lastly, except for the final computations on the arc of the trajectory through space, my machines must be rendered proof against the cold of space. That bit bothers me." He shook his head. "273.1 degrees centigrade is no temperature for machinery! It will never stand it."

"Rof-Elsor might have a suggestion," said I. "He knows a good deal."

"An excellent suggestion, Lee." Frot turned and explained matters in the Jovian language, but it proved to be Hi-Tum who provided the solution.

"Your problem is easily solved, Earthling," he said. "Several of the machines here have to work at the temperature of space when collecting space-vibrations—that is natural, but they are rendered proof against its

ravages by the use of what we call 'throw-back' energizers. These machines emit a liquid, at regular intervals, which sprays the space-vibration machinery, and the liquid has the effect of altering the molecules in the machinery so that they turn extreme cold into heat. You on Earth have surely accomplished that much?"

"Not altogether," Frot answered. "We know of no way to turn cold into heat, but we do know certain peculiarities affecting atoms. It is also possible, we know, for say a star to get hotter the more heat it emits! I suppose this system you've mentioned is something similar, only practicable."

"Exactly so," Hi-Tum assented. "However, as I was saying, we have only to spray the machinery with this Inolan liquid and it will preserve it during the time it travels through space. That's your final detail overcome."

"Indeed, yes. The only thing left is to get the magnet working again. That can be done?"

"Assuredly. To an expert a short circuit is trifling," Hi-Tum answered, and immediately assigned to Rof-Elsor the task of re-assembling the magnet's various power necessities, while Frot, absorbed again, put the finishing touches to an incredible formula on momentum and inertia. . . .

The coming of the Ondonian night found us in readiness for our machinery-throwing activities. All of us gathered on the engine-balcony—save Rof-Elsor whose turn it was at the force-projector on the roof-tower—and Hi-Tum stood by the switches while Frot issued instructions. Zan-Kafod was present at the controls of the great magnet itself. Ronnit, Elna, and I had little to do but watch.

Lying on the balcony floor was the

necessary machinery for Frot's sound projector, while below it, and calculated to be in perfect line with Paliso, allowing also for trajectory and orbital movement, lay the force-projector. Through the now open roof we beheld Paliso, world of sound, low down on the horizon in a cloudless sky. Purposely we had waited for the dispersal of the evening mists.

"Are you ready?" Frot enquired.

"Entirely," Hi-Tum answered, his tentacle on the controlling switches.

"One . . . Two . . . Go!"

Instantly the force-projector hurled its energy through the iralium floor and beneath the machinery. Like a shell from a gun the Inolan-sprayed equipment shot skywards and vanished almost immediately from our view, leaving no trail of light from friction with the atmosphere, since Inolan liquid turned heat into cold, and cold into heat. . . .

Frot watched the speck vanish in the night sky, then calmly surveyed his electric wrist chronometer. For a long time he stood silent and rigid, then raised his hand.

"Now the magnet," he said, and instantly Zan-Kafod below us moved the necessary buttons. The great powerhouse became alive with sound; its engines flared into life, blue haze rose into the air. The smell of sulphur and ozone drifted up to the balcony. I shot a glance downwards at the whitehot bed of the retractor, roughly repaired as far as Rof-Elsor had understood it—the mass of wires in which the unfortunate guard had fallen from the balcony. That mesh of power struck me as being the most impressive section in the whole scheme of super-intelligent machinery.

"That's about it," said Frot at length, lowering his hand and looking up from his chronometer. "Stop!"

And incontinently the machinery ceased and we looked at each other expectantly.

"My calculations show that my machinery should now be lying, unharmed, somewhere on Paliso," Frot remarked calmly. "It was impossible to calculate an exact spot. All we know is that the machinery was held within the walls of that force beam until it reached Paliso, which prevented it getting adrift in space. The magnet gave it a safe landing. Our next move is to go to Paliso itself—but while you, Zan-Kafod—and Rof-Elsor, who is up on the platform, come with us, you others must remain behind. You, Hi-Tum, we'll leave to guard and take charge of this place; you, Fa-Isanod, will take your place at the space-radio equipment and we will advise you how we progress. Is that in order?"

"Quite," Hi-Tum conceded, with a little obeisance. "Are you starting for Paliso immediately?"

"Right away," I answered. "It's the best thing to do. We'll keep in touch; our time-space machine has been equipped with space-radio during the morning, along with the provisions, a small telescopic-refractor and other things. Let's get going. . . ."

"Yes, and while we are away keep that magnet off," Frot remarked. "Otherwise we will be caught in its field of attraction."

"You may rest assured," Hi-Tum responded; then Rof-Elsor appeared from the roof and joined us.

TEN minutes later, after entering the magnet floor through the open doorway—which had been opened by our colleagues during the morning for the work of equipping our time-space machine with necessities—we entered the vessel itself. The

closing of the outer door, a few movements of the controls, and we were in space once more, and leaving the grim world of Ondon far below us in the void. . . . And from this vantage point we again beheld that celestial mystery—the two bright, unknown planets. Once more frowns of puzzlement came to the brow of Rof-Elsor, and once more he dismissed the matter as obviously being of no consequence. . . .

Some time later found us floating down through the sparse upper clouds about the craggy world of Paliso. Exercising extreme care I gradually brought us down until we came to rest on the floor of the valley. It was certainly not the same one we had visited before. Above the mountain tops the globe of Ondon hung before us.

"Nice work, Lee," Frot commented, patting me on the shoulder. "We'd better wait and rest until sun-up, then start searching for my machinery. We'll find it quickly enough with the detector." This latter instrument we had brought with us, to enable us to detect the magnetized apparatus without difficulty.

"Until daylight I suggest a meal and sleep," said Lan Ronnit, and set the example by disappearing into the adjoining provision room. . . .

Dawn on Paliso was as cheerless as all other spectacles on that inimical planet.

The sun rose suddenly from behind the gaunt mountain ranges and shed its sulphur-yellow light on cliffs of frozen gray, and a valley-floor of stones. Again, as we looked out of the window, bestirring ourselves from slumber, we remarked the strange shifting of the air occasioned by the planet's remarkable acoustic properties.

For myself, I felt much refreshed by the rest, and so, I think, were the

others. We had a roughly prepared breakfast, some of the revivifying ekrimar, then set off into the air, keeping as close to the ground as possible, in search of Frot's machinery. Frot himself kept his eye chained to the detector-compass, whose needle-deflection would instantly reveal the presence of his equipment.

It was as we progressed that I realized the planet was nothing more or less than a dead world—at least to intelligent life—with its abysses, crags and awesome gorges of sheer-faced rock. No place for headquarters! Yet it had to be done.

"Right, Lee—steady!" Frot said abruptly, his voice cutting in on my meditations.

I slowed down to a crawl, using the helicopter screws to keep up aloft. Elna was busy with the binoculars, and suddenly she gave a little whoop.

"Immediately below, Sandy!" she sang out, looking up. "On the valley floor."

Under her instructions I brought the time-space machine to the ground and safely anchored it. Moving to the window we beheld the small black hill that comprised Frot's apparatus a quarter of a mile distant.

"Splendid! It is unharmed!" Frot exclaimed in satisfaction. "Now for space-suits."

"What on earth for?" I demanded. "There's atmosphere outside."

"Truly—but think of the sound. That sound-force can kill, Lee. Space-suits are the only protection against it. Come along."

We moved to the emergency chamber, all save the two Jovians who elected to stay behind because no space-suits would fit them, and donned our suits. Then, unharmed by the terrific din we must have made, we climbed out and dropped to the stony valley

floor, moving, with the slow progress of rheumatics, toward the mass of machinery awaiting us.

"We'll be all right if we erect it here," Frot said into his communicator. "We have everything we need. A clear valley floor; and open sky lies up there, clear of the mountain tops. By using the telescopic-refractor on the ship we can see how things progress after our experiments."

Without further words we set to work with the portable beams-of-force machines, which had been sent along with the equipment, and connected them to the batteries on the space-time machine. Thus we had instruments as useful as cranes, and with their tremendous power it was not difficult to marshal the machinery into gradually forming order.

FIRST came the force-projector to hurl the vibrations intact through the void, then the sound channeler—as Frot called his instrument for gathering the sound into one complete whole before its entrance into the final projector—then the atom-splitter, this being converted so that the core of the puff-balls, lying in the base of the machine, could be shattered to their constituent atoms at the moment of their beginning to emit sound. This, he had calculated, would result in the pure energy of sound, the splitting of the particles of the sound wave itself. He had reasoned that the sound-particles were really carriers of sound, but that within themselves must lie sound without limit. This unearthly ultimate of sound, magnified to a vast extent by the planet's sound-amplifying qualities would result in a mass of colossal vibration—for of course the sound would finally become pure terrific vibration, in which form it would travel through space—and so to On-

don. Without the air of Paliso—or at least the air's curious powers—our efforts would undoubtedly have been very feeble. As it was the scheme seemed perfect, particularly as the magnetic crystals, which Frot had dragged along with him in their container from the ship, would also be split up by the atom-splitter and resolved into pure magnetic radiation, to further increase the mass of incredible force we proposed hurling at Ondon. I began to wonder, as we progressed, if this splitting up of so many components into their absolute of energy might not actually blow even Paliso itself clean out of its orbit with the recoil! Frot, however, seemed confident enough, so the work went on. It was a long task, with frequent intervals in which we returned to the ship for fresh air, renewal of air-tanks for our suits, and a rest. But at last we had the machinery erected and everything in perfect order. We had only to wait then for Ondon to rise above the mountain tops. . . .

"It's certain to work!" Frot declared, with rare enthusiasm. "Zagribud will just smash into powder under such frightful force. I've charted everything out to the last degree. That force will strike Zagribud dead in the center. . . . Let's have a look at Zagribud."

He turned to the telescopic-refractor and adjusted the lenses, after fixing the high-powered object-glass in line with another attachment—the horizon-reflector. This curious device, of Jovian origin, made it possible to see a planet if it lay below the horizon by drawing to itself the emanating light-waves from the planet in question. Thus it was that, although Ondon itself was not visible to the naked eye, with the instrument, its blunt nose flush with the observation

window, with its clear, non-distorting glass, we presently beheld on the reflecting screen a view of Zagribud itself, and to the right the isolated mass of the power-house, with a dimly discernible figure pacing to and fro on the platform.

"All's clear as yet," Frot murmured. "No attack—nothing. I can't quite understand it all."

"Yes, too much like the calm before the storm," Elna remarked dubiously, staring at Zagribud's mighty mass.

"We might radio and learn the state of things," said I, and turned to the space-radio apparatus at my elbow. Presently I had tuned in to our little outpost power-station on Ondon, and the voice of Fa-Isanod came in the headphones.

"Everything all right?" I enquired. "We've landed safely on Paliso, and have got all our equipment in order. Any signs of trouble on Ondon?"

"None whatever," came the Jovian response. "I never knew such quietness. I must admit that I—" He stopped, and I waited for him to continue. Then as the silence continued I spoke again. "Fa-Isanod. Give instructions to the others to get as far away from Zagribud as they can—to leave at once. Otherwise you may be destroyed by our vibrations. Go toward the Ri-Pud Lake; we'll come back and pick you up. That understood?"

Complete silence.

"Fa-Isanod, do you hear me?" I demanded. "Answer!"

Still the dead silence persisted.

"Fa-Isanod doesn't answer!" I exclaimed worriedly. "Wonder what—"

"Sandy, quick—look here!" Elna exclaimed abruptly. "Hurry!"

I turned around, headphones still clamped to my ears, and looked into the reflecting screen of the telescope.

At the moment I looked I experienced a sudden, brief spell of dizziness; for an instant something seemed to numb my mind, and then passed. I stared intensely at the reflector.

A rolling white mist was apparently stealing over the face of Ondon, seeming to have its source in Zagribud itself. A billowing cloud of whiteness that gradually covered the whole planet . . . then, very slowly, the mist began to disperse again. Yet, in some odd way the view appeared changed. It was the same, and yet peculiar. I cannot adequately convey what I felt, nor did I realize then what the occurrence signified. I turned away again.

"Something queer going on," I muttered. "Fa-Isanod stopped in mid-sentence. He hasn't even answered my warning to him. I—"

"That's odd!" exclaimed Lan Ronnit abruptly. "There's no guard on the power-house tower now! Nor can I see the dark spot of our force projector. What's gone wrong?"

I sat biting my lip in perplexity for a space, then I shrugged. "I can't pretend to understand it. Zagribud is still there, so it can still be shattered. It looks as though the power-house has been attacked by some unknown force or other." I took the headphones off and disconnected the transmitter. "About thirty minutes before your experiment is due, Frot," I remarked, glancing at him.

He looked up from his chronometer. "Twenty nine and a quarter minutes Earth time, to be exact, Lee," was his unmoved response. . . .

THE twenty nine and a quarter minutes dragged back with irritating slowness, but at last the time did arrive for us to again don our space-suits and stagger out into the

valley beyond. In the interval, Ondon had risen clear of the mountain ranges, hanging as a yellow ball in a gray-black sky. And again, I noticed, on either side of her, those two bright, enigmatic planets. . . .

Frot, a weird figure in his bulging space-suit, made a brief examination of his magnetite crystals and puffball-cores, inspected the tiny apparatus for pressing the two halves of the puffball-cores together, and nodded in satisfaction. Then he took his stand before the switchboard. I watched my own chronometer, and to the exact second he had predetermined Frot depressed the four-pole switch of the atom-splitter, which synchronically set all the other machinery in action.

Never shall I forget that which happened immediately afterwards!

A blinding beam shot from the hollow space at the bottom of the atom-splitter. We heard nothing inside our suits, but before our eyes the very air danced like a thousand furies. The very mountain range seemed to warp and bend before it. Came a ground-shaking concussion and we were all four of us hurled through the air like stones from catapults, to crash, thanks to our suits, bouncing amidst the stones of the valley floor quite two hundred yards from the scene of the disturbance. Even then enormous radiating pressures held us down, and I am sure quite five minutes elapsed before the frightful disturbance eased up and slowly ceased. . . .

With extreme caution, in case the force had not fully spent itself, we returned to our machinery. The whole issue had toppled over with the recoil.

"Never mind," Frot said into his communicator. "The sound vibration has been hurled forth; what happens

to this stuff doesn't matter now. Come—we must view Zagribud right away. . . .”

In silence we returned to the ship, removed our cumbersome suits, and entered the control room again. Rof-Elsor and Zan-Kafod were full of the story of how the space-time machine had nearly overturned with the concussion. . . .

“Now, let's see what's happened,” Frot breathed in a pent voice, and again as he adjusted the screws on the instrument I felt once more that odd, evanescent dizziness. I turned to the view in the reflector. . . . We all of us, our two Jovian friends included, drew our breath in sharply at what we beheld.

Zagribud lay a crumpled mass of smoking dust, from under which the very ground itself had been blown away! Our power-house, too, lay a split and rended ruin, and the square mass of the magnet had disintegrated into powder! Yet nowhere could I see a sign of anybody—no evidence of people fleeing with terror, or any sign of panic. For some reason, then obscure, Ondon was a dead world. Yet somehow I had an odd conviction that something was amiss somewhere. Again I noticed something peculiar about the scene. Again I felt dizzy. . . . I turned aside and Frot switched off the scene.

“Well, you've done it!” I exclaimed, patting him on the shoulder. “You have blown Zagribud to shreds—and presumably our friends in the power-house. Still, I tried to warn them; this is not a time for discrimination. . . . The menace to Earth has gone. That leaves only—Jelfel!”

Frot nodded. He seemed remarkably cool and detached in face of what he had done.

“So Zan-Kafod and I are without a

city, and without a world,” Rof-Elsor remarked. “I am glad to see the last of Zagribud, but where are Zan-Kafod and I to go? Earth?”

“Assuredly,” I replied. “Our work here is ended. Earth now holds Jelfel, and he must be exterminated. We can return to Earth immediately. Fortune has indeed favoured us so far. . . .”

I turned to the controls and set our course for Earth, computing it from the constellations which I had, by now, grown to recognize at sight.

Our journey back to Earth differed but little from other space-journeys. Presently attaining the speed of light, as our Particle Disintegrators reached their maximum recoiling velocity, we found Earth rising to meet us some hours later.

For my own part I felt supremely happy at the vision of New York 25000 A.D. below me. With swift easiness our space-time machine shot athwart the tops of the highest edifices, skimmed the massive dome of the T.L.C. Building itself, and so finally to the space grounds.

“Home!” I breathed ecstatically, flinging in the anchor-brake. “We've done it!”

From the position of the sun I judged it to be mid-day, therefore there was every chance that Templeton would be about his normal duties in the T.L.C. Building. The six of us—Rof-Elsor and Zan Kafod evincing extreme delight and awe at the constant surprises they beheld on the way, and occasioning no little curiosity in Earthlings too!—made our way to the Building, and were ushered into the Debating Chamber. We were fortunate in that the entire Board was present.

“Commandant Lee!” Templeton exclaimed in delight, rising. “Welcome! All of you! What have you to report?”

"I have to report the destruction of Zagribud, President—the wrecking of the city responsible for the enslaving of Earth; and the killing of Rath Granod, ruler of the City. That leaves only Elnek Jelfel, and as he is on Earth I have returned to wipe him out."

Templeton pondered for a moment, a strange expression on his face. "If you have indeed destroyed Zagribud, Lee, how is it that we are still in 25000?" he demanded. "That should have been destroyed at the same time—the unknown power that is holding us here should have ceased—since the initial machinery is on Ondon."

I started at that; it was a point that had escaped me in the general confusion. I shot a glance at Frot; his high forehead was wrinkled in deep thought.

"I—I am afraid I cannot explain that," I answered. "Maybe something to do with relativity. Being used to a thing we can't detect a change—"

"That is not scientific, Comman-

dant—it's fantastic," Templeton answered grimly.

"Well, we saw Zagribud destroyed with our own eyes—and so did these two Jovians," I responded. "The time problem is something I cannot understand. . . ." I paused, puzzled, as a sudden most extraordinary shaking and vibration made itself manifest throughout the great building.

A continued period of crescendoing vibration, then—

"Lee! President! Quickly!" shouted Ronnit.

We all raced to the window and looked out over the great mass of the city. That same strange change was suddenly before us that I had seen at the outset of these amazing experiences—strange shiftings and meltings—one city upon another. A sense of enormous acceleration and increasing dizziness.

Helpless, futile, we dropped down into a whirling abyss of unconsciousness, before we could raise as much as a finger to help ourselves. . . .

END OF PART II



*America's biggest
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Mr. Bowen's Wife Reduces

By MILES J. BREUER, M.D.

This is a story of a little man with a wife who did not share that peculiarity.

THE speeding Ford V-8 never wavered an inch from its set route, even though a tremendous disturbance had taken place within it. Only Mr. Bowen's knuckles paled as his hands clenched the steering-wheel with unusual tightness, when, upon looking into the driving-mirror, he saw the sooty smudge on his collar, from his wife's fingers.

Mr. Bowen, in spite of all euphemism, would frankly have to be classified as a small man; five feet three inches and a hundred and ten pounds. He was also dressed with the most fastidious perfection. Every fold, every crease in the right place, not a speck of dust, colors and shades all correct, linen immaculate, except for the horrible smudge (one centimeter in diameter) on the wing of his collar. Furthermore, Mr. Bowen had a quick way about him, the way his eyes moved, the quick gestures of his hands, the way he handled the car.

His disturbance on beholding the gray smudge on the immaculate collar consisted of a silent seething, in which loathing and confusion were mingled. His foot went down on the clutch; the other foot approached the brake pedal. However, the barely perceptible and momentary slowing of the car smoothed back out into its swift progress toward town. For a moment it had occurred to him to drive back home and change his collar; but there was something about the idea that instantly repelled him.

He therefore stopped at a men's furnishing shop as soon as he reached the business district, and bought himself a new collar. Then he clenched his fists, cleared his throat, pondered a moment; and then went to the telephone and made an appointment.

* * *

"It's driving me crazy," he said to Mr. Leitz, of Hemingway, Dufay, and Leitz, Attorneys, pacing back and forth in their office.

"When I married her, she was trim, neat and vivacious!" he exclaimed.

"Now she weighs two hundred and twenty pounds, and is not even bright," he continued as the attorney waited.

"Not even clean!" he said with a shiver.

"Can't even see that she is driving me nuts. Thinks everything is all right."

"She is that stupid," he added, warming to his complaint.

"Always messing up everything for me. But cunning enough to see me look longingly at slim and lively girls, and to keep a fierce guard over me. Why, I'm practically in custody."

"Once we were happy together."

"Am I going to lose my reason?"

Mr. Leitz was a human sort of person. He did not jump at once to the idea of a divorce, as would have many a mercenary and unfeeling lawyer. He was sorry for the slow and unwieldy Mrs. Bowen, and did not like

to think of her being kicked out in her unfortunate condition; not even to save Mr. Bowen's alleged reason. (Besides, Mr. Bowen did not look well enough off for a fat divorce fee and a pile of alimony.)

"Say, Doc!" he called up a medical friend of his. "Would you like to prevent a divorce?"

"Sure, Joe," the doctor replied, "if there is any chance of beating you out of a case."

He listened to the lawyer's tale, and then asked to see the lady.

"Dr. Hanot is a very brilliant man," said Joe Leitz to Mr. Bowen.

Mrs. Bowen followed her little husband stolidly along to the doctor's office, and submitted placidly to the quiz. She was undisturbed by having to lie on a high bed and have a trim and magnificently neat technician fasten things into her mouth for a test on some sort of machine. She took everything as it came, and offered no comment. Mr. Bowen hopped and twittered about the place, now here, now there, like some brilliant and nervous bird.

Even the needle in her arm did not disturb Mrs. Bowen.

"Substance recently isolated from a gland in certain animals," the doctor explained. "Injection once a week. Please be back next Thursday at 2 o'clock."

At the end of the first week, Mr. Bowen was overjoyed. His wife had lost two pounds. His nimble imagination could already see her rapidly becoming her old, neat, slim self again; and he almost wept with joy. As he thought of the happiness that would bring him, and of the suffering he had gone through in the past two or three years, he became almost hysterical in his joyous anticipation. He was expansive as he drove his wife to the

doctor's for the second injection. She hardly seemed to notice what he said.

During the second week, Mr. Bowen watched his wife anxiously every minute of the time. He could hardly contain himself from taking her to the scale and weighing her several times a day. At the end of it, three more pounds were off; and as he took her for the third injection, the world already seemed a different place.

At the end of the fifth week, Mrs. Bowen was definitely smaller. It could be seen at a glance. She was really smaller.

But there seemed to be something wrong about the whole proposition. Her figure was not getting graceful. Driving along in the Ford V-8 one day, far from home—he was a traveling salesman for a notion house—he reasoned it all out, and it dawned on him that the drug was reducing his wife's stature as well as her girth. She was getting smaller in all dimensions.

He turned right around and drove back to his home city, and hurried up to the doctor's office.

"Don't give her any more of that stuff!" he exclaimed to the doctor.

The doctor patted him on the back.

"She was in about an hour ago and got her last shot," the doctor said. "Now, don't worry; she'll be all right."

Mr. Bowen left the doctor's office, as most of us do, superficially convinced and internally torn by doubts and fears. There followed for him weeks of mental torture which were far worse than those previous months when he had feared he was losing his mind.

For, as he watched her day by day, his wife continued losing weight—and growing smaller! Before his eyes, she grew literally smaller; she

was becoming a dwarf. Finally, when he thought he could stand it no longer, he rushed in terrified desperation to the office of Attorney Leitz. His torrent of anxious words alarmed the lawyer, and he accompanied the confused and anxious little man to Dr. Hanot's office.

Mr. Bowen did not remember getting any satisfaction out of either the lawyer or the doctor. They both patted his shoulder in turn. At the moment their explanations seemed satisfactory, and he went out of the office reassured. However, the moment he was in his car again, the doubts began to return. It was all very suspicious. It seemed that they were conspiring against him, and trying to talk him out of something that he could see with his own eyes. Perhaps the two of them were in conspiracy with his wife. When he got home again, there was his wife, the size of a nine-year-old child.

FOR another six weeks of agonizing mental torture for Mr. Bowen, (during which however, he managed to get about and get orders for notions) she was only two feet high. The devastating thing about it was that Mrs. Bowen did not seem to realize that there was anything wrong or out of the way about the whole business. She insisted on going out to dances and parties with him and mortifying him. She seemed to take especial delight in being with him among people, which made him shiver in shame. He was conscious of every one staring at his dumpy, waddling companion, tiny, down near the floor beside him. Always it seemed that he could not live another minute. It was always a relief when they got home and closed the door behind them on the outside world. There was no use in protest-

ing to her, nor to anyone else. He bore it in silence.

It finally came to the point where he refused to go out with her. She was too small. It was odd that she herself did not seem to pay any attention to her small size, nor to be put out about it in any way. If anything, she was more sympathetic with him since she had become tiny, than she had been previously. But, it was all very horrible for Mr. Bowen. When she was only three inches high she was still two inches wide. How could he go about outside, with her that way? Not only did it look impossibly silly; but something might happen to her; he might even lose her.

He did lose her. One day he rushed wild-eyed and dazed into Mr. Leitz's office.

"I have lost her!" he shrieked.

"She got so small, I couldn't see her," he replied to the lawyer's inquiry. "She must have slipped into a crack somewhere, and fallen—"

"She just got so small, I couldn't keep track of her."

The lawyer tried to comfort him, and spoke empty words, that it would come out all right. It was all very conventional comforting, but it was not at all to the point, and did nothing about the fact that Mrs. Bowen had gotten so small that she had disappeared.

"But, they will accuse me of murder. They will think I made away with her," Mr. Bowen urged, wringing his hands.

"Nobody thinks that," the lawyer smiled. "Besides, unless there is a dead body, no one can prove a murder, you know." He did not seem to take the matter very seriously, it seemed to Mr. Bowen.

"Nobody believes me," thought Mr. Bowen.

Oddly enough, though, he felt somewhat consoled as he went out of Mr. Leitz's office. He went to his lonely home, and wept for his vanished wife. Disconsolately he read the evening paper. But there the headlines told him about an Ohio minister burning his wife's body completely in the furnace; but later the deed was proved against him by the identification of the gold from her teeth. Mr. Bowen was in a sweat of panic again.

Then there was a knock at the front door. Already they were after him! He went out of the back door, and ran.

He fled out of the city to the mountain. It was a beautiful mountain, several miles away, in plain sight of the city. It was one of the "sights" of the city. He had often admired it: the play of the sunrise behind it and of the sunset upon it; the change in colors from the greenness at the bottom to the blue at the top; of the mysterious valleys and peaks below the highest soaring point that was always fringed with white, fluffy clouds.

He had often meant to go to this mountain; just to explore around in a leisurely way, some time during some lull in his busy life. But he had always been busy; the lull had never come. A multiplicity of details absorbed his life. They prevented his doing big things or enjoying himself, and yet after they were all done, of what value were they to anyone. This was the long wished-for lull. Now he would use it to explore the mountain.

When he reached the mountain and was upon the side of it, it seemed still more beautiful. He loved the green of the trees, the grass in the lower parts and the pine woods above. He loved the sparkle and splash of the brooks, and the crunch of stones under his feet.

He spent hours wandering around,

merely enjoying himself, drinking from the streams. He heard no sounds of pursuit, and forgot the possibility of it, until he lay down to rest beside a stream that wandered among the pine trees. Then there were voices in the distance. Again he got up and went on.

He came to a tall, steel fence that stretched impassable across his path. Through it he could see a park-like estate within; it was even more beautiful in there than without. He turned to the right and followed the fence, until he came to a stone gate which was marked: "Private Estate of Andrew Clayton."

ANDREW CLAYTON was a chain-store magnate. Mr. Bowen had met him personally in a business way long ago. At that time Mr. Clayton had been friendly and genial. He had said:

"If you ever pass my place, I want you to stop in, and we will shoot some pheasants."

At the time he had not believed that the big man had meant it; but he had in the meanwhile often imagined himself shooting pheasants with the man who owned half the chain stores in his territory.

On the gate, there was a button to push, and a transmitter to speak into.

Servants graciously conducted Mr. Bowen into the presence of the magnate. Mr. Clayton was glad to see him, and made him feel at home at once. He did not even inquire how Mr. Bowen happened to be up that way. He suggested pheasant-shooting quite promptly. It seemed that all these years, he had been expecting Mr. Bowen. In the afternoon, Mr. Clayton took Mr. Bowen and two other gentlemen pheasant-hunting in the wire enclosure, which seemed to cover

many square miles. Mr. Bowen was happy because no pursuers could get in there.

The next day, Mr. Bowen decided that he ought to leave.

"I've had a mighty good time," he said to Mr. Clayton. "But I must not be a burden on you, and I've got to get along."

"If you are really enjoying yourself, why hurry away?" Mr. Clayton urged.

"How long do you think I ought to stay?" Mr. Bowen asked, nothing loath.

"Why decide upon that now?" Mr. Clayton solved it simply.

So, he stayed happily on. There was tennis to play. How hungrily he had wanted to play tennis since his student days! He sat languidly in the afternoons and read books which he had been longing to read for many years, but had been too busy. Life had been a constant drive. Always he had had to do what other people did or what other people wanted him to do, and never what he liked. Here was a chance for some relaxation.

Mr. Clayton's servants were remarkably intelligent and capable people. Mr. Bowen had never been used to having servants do things for him, and to be looked after in smallest details. It was all very gratifying, and made him feel quite important and big.

Mr. Clayton and the house guests were charming. This was Mr. Bowen's opportunity to cultivate the ladies, and he made the most of it. A great hunger was fulfilled in him, in just being able to sit about in a leisurely way and talk to them,—especially in the evening on the big veranda with no lights except the moon. They looked thrilling and charming in light-colored wraps.

Days and nights passed. He tried to count them, but desisted. Why worry with counting, when other things occupied his attention. The big thrill came several nights after he arrived. One of the ladies agreed to walk with him in the evening by moonlight. Ever since the middle of the afternoon, when they had agreed on the evening walk, his heart bounced away at high speed. She was a very charming lady, about twenty-eight years old, with a most winning smile and an engaging way of talking about everything. She was very beautiful, slim, and *petite*.

It was a beautiful walk at night with the big round moon over the black pines. All round was the security of the steel fence, to keep out intrusion and trouble from the Outside.

The next afternoon they walked again. She was neat. She smiled. She was interested in him and considerate of him. Again he caught a glimpse of the steel fence. By daylight the thoughts it aroused were different. It made him worry about the time he must think of getting away from here; he could not continue to impose forever on Mr. Clayton's hospitality. He would have to go away. Where would he go?

Then came the thought of his lost wife. The jerky feeling in him changed his mood. But Mrs. Bowman did not even ask him why he felt so sad. She seemed to understand. She understood everything.

He did not want to go home. He wanted more days to talk to her; and many evenings. He loved her by the light of the moon. He asked her for another evening at once. That was nerve! However, she was happy to give it. She was a most friendly lady. Again the thought of his wife barged

in, her unwieldiness and her persecution of him. He realized that he was glad that he was not at home. He was glad that she was lost. But on top of that he was worried with thinking he was doing wrong.

In the evening he told Mrs. Bowman that he disliked to think of going away, but that he must no longer continue to take unfair advantage of Mr. Clayton's hospitality.

"Perhaps we shall meet again."

"Do not worry, and try to be happy right now," she said with her bright smile, and seemed quite satisfied about it all.

She was very beautiful. What a contrast to his fat, stupid wife! He realized now how he had really hated his wife, but had refused to admit it to himself. That world back there was indeed a most tragic, difficult and confusing place. He wished that he could stay on at Mr. Clayton's forever. There were some of the guests at least, who seemed to be staying as long as he was.

TIME passed. Mr. Bowen did not know how much. It must have been weeks, though, for here was another evening with a full moon over the black pines. They were beautiful weeks, out of which he had spent with Mrs. Bowman all of the time that men and women guests could find opportunity for being together. When he was in his own room, he could hardly wait for the time to come when he would see her again.

At the same time, thoughts of his job back there in that world came to torture him. The idea of having to go back there brought a sort of terror with it. He knew that if he tried to explain how he had lost the wife whom he had disliked so much, no one would believe him.

There was no question that he was in love with Mrs. Bowman. Of course, such a thing must not go on. His mind was fully made up to that. He could see that she also liked him, and he could not permit her to drift into some kind of a shady affair. He was no kind of person for an honorable woman to be mixed up with. The sooner he broke it up the better it would be for both of them.

It took courage. However, he felt stronger now. He was rested. He was not nervous any more. He was able to stand up and go back and face the music. He would go to the police and tell his story and face the consequences.

"I'm a sort of murderer," he said to Mrs. Bowman, in his effort to explain why he must go away.

"I've killed my wife. Not exactly killed her, but it was my fault that she got lost and disappeared. I did not take the proper care of her. It was all my fault that she got so small."

Mrs. Bowman looked beautiful, but said nothing.

"The companionship with you has been wonderful," he said to Mrs. Bowman. "I hate to leave. But I've got to. I'm going. I shall never forget your kindness."

She still did not say anything, but listened and looked at him with wide-open, amazed eyes. That made it harder for him to go. He could see that she thought a great deal of him. He could even see that she did not want to lose him.

"Don't you want me to go?" he asked.

She shook her head, and a strange light came into her eyes. That made him still bolder.

"Do you mind very much that I fell so foolishly in love with you?"

"No!" she breathed, scarcely audibly. "I have been waiting. A long time."

Mr. Bowen was dazed. Things whirled with him.

"I love you! I love you!" he exclaimed, and repeated it many times, and held her hand in two of his and gazed at it intently, as if in that pale hand lay the answer to all his puzzles.

She seemed happy and pleased, but could not speak.

"Let us both go away tomorrow. Together. And do things!" He held his breath awaiting her answer.

"Yes!"

Radiantly, she spread her arms wide for him.

A strange thing happened to Mr. Bowen. His brain swam. Things clouded and changed about him. He was not unconscious. The change was all in the outer world. Then, suddenly, everything cleared. A wide, solid bridge seemed suddenly to extend back to the morning when he had found the smudge on his collar in the driving-mirror of his Ford V-8.

There was his wife in the room with him. But it was the slim, bright-eyed girl, full of laughing life, whom he had first married. She was smiling at him with a mist in her eyes,—not the fat and sluggish creature who had haunted his recent months, but the beautiful wife of his romantic courtship days.

The room was a simple sitting room, somewhat like a hotel room. Outdoors was a park, grass, trees, flowerbeds; like nothing that he could remember ever having seen. There was something queer about the windows. There was a network on the outside. It was a network of heavy steel wire. When in a moment Mr. Clayton came

in, he looked so thoroughly a physician, that there could be no question about it.

The actual steps by which the truth percolated into Mr. Bowen's mind were long and tedious and not interesting to tell about. In his memory the realization still seems a sudden transition rather than a slow development, and it is better that way. For, there never had been any mountain near the city, and Mr. Clayton's estate was a mental sanitarium. Mr. Bowen was now well and cured; but his enjoyable vacation with Mr. Clayton, who was really Dr. Beaton, the well known psychiatrist, was a period of treatment for a genuine mental breakdown.

"But you!" he exclaimed to his sweet and most adored wife. "That terrible—weight—and sluggishness! Certainly that was no illusion?"

"No," she replied. "Dr. Hanot recognized it at once, as a disease that is well known to medical men: hypothyroidism or myxedema. A little gland in the neck here—" her hand was inexpressibly graceful as she indicated her curved, white throat—"falls behind in its function. But it is easily cured by injections of an extract of the same gland from sheep."

"You poor dear," he said. "You've had a terrible time."

"No," she said, laying her hand on his shoulders; "you are the one who has had the terrible time. Dr. Beaton says that your illusion of my growing small was merely a symbol of what you thought of me, and what you wished — especially when I disappeared in a crack in the floor."

Dr. Beaton shook hands with him.

"Your company is anxious for you to get back on your territory," he said. He was an excellent psychiatrist.

Exiles from the Universe

By STANTON A. COBLENTZ

This author is a favorite with our readers and we are very glad to give a short story by him.

CHAPTER I

AS I write these words—which, for all I know, may never be read by any eye on earth—I look out upon a scene of unparalleled splendor.

Through the windows of the little car in which my three companions and I shoot through space at a speed beyond our powers of computation, I see a spectacle such as poets may have dreamed of, but common men have never thought possible. Set in the infinite blackness above us, and below, and to all sides, there gleams an indescribable multitude of stars,—brilliant white orbs outshining Sirius, ruby-red luminaries, and emerald-green, and sapphire-blue, and yellow; sun-clusters glaring in their remote, dazzling myriads; spiral nebulae twirling their crab-like arms; and radiant clouds of universes shimmering at inconceivable distances, set amid "coal-sacks" of absolute opaqueness. Constellations and planets never known on earth peer out upon me, the nearer ones shifting and passing with almost meteoric speed, as my companions and I go darting through realms never before traversed by any of our kind. Whether or not we shall be able to return to earth is still doubtful; but even should we perish here in the vastness between the worlds, it will have been worth our while to have taken so extraordinary a voyage, to

have encountered such miraculous adventures, and to have been the witness of such unbelievable magnificence.

But I fear that, in my enthusiasm, I am leaping ahead of my story. Let me go back to the beginning; let me explain, as simply and intelligibly as I can, just how we came to be here. And first let me tell about my old friend and colleague, Dr. Franklin Chalmers—for he it is that deserves the credit and the glory.

CHAPTER II

IT all began many years ago—as far back as 1980—and had its roots in what I may call Chalmers' "cosmic interest." For he, as Assistant Director of Mt. Hoary Observatory, was not what one would call a member of the "pinpoint school" of scientists. He was not concerned with minor, everyday phenomena; rather, his imagination was most at home with worlds and universes, and thought nothing of ranging, charting and measuring the cosmos as though it were a mere back yard adjunct of the Observatory. Already, in his twenty-seventh year, he had earned a reputation for his daring theories and computations regarding the variable stars and nebulae; and when, in the summer of 1980, the new 300-inch lens was installed on Mt. Hoary, it was Dr. Chalmers who made the most striking discoveries.

Above all things, he was interested in the doctrine of the curvature of space (first introduced by Einstein many years before). It was his contention that the 300-inch reflector offered evidence of such a curvature; that the distribution of the remotest stars, as seen through the giant telescope, indicated that space tended to curve back upon itself, so that if one went far enough in any direction, one might return to one's starting point.

So certain was he of this conclusion that, in the face of the scepticism of his associates, he would cry out, "Let the opportunity come, and I will show you! If a space car of sufficient speed and power could be devised, I would actually make the trip around the universe and back!"

Of course, all the rest of us only smiled to hear this wild boast. To see Dr. Chalmers, with his curly brown hair, his intense sparkling blue eyes, his somewhat boyish face with its look of supreme seriousness behind the horn-rimmed spectacles, one would not have imagined that his words were anything more than the effervescence of youth. Considering that the universe was known to be hundreds of millions of light-years across, we agreed that he would have as much chance of traversing it in a space-car as a babe would have of swimming the Pacific Ocean.

However, if there is any one positive rule in science, it is that one must not be dogmatic. Fantastically improbable though it had seemed, Dr. Chalmers was actually to see his wish fulfilled. He was actually to undertake an expedition such as no man had ever attempted before and few had conceived of in their most extravagant dreams.

But it was not until years later that the event became possible. It was not,

in fact, until 1987 that the world had its first intimation of the existence of the now-famous Z-rays—without which, of course, space-cars could never have voyaged much beyond Mars or Jupiter. In January, 1987, thanks to the invention of a Norwegian scientist, a new super-sensitive radio device was introduced,—a machine literally capable of hearing a whisper around the world. But, from the first, this contrivance did not work quite as predicted. Continual mysterious interferences with the reception were noted,—a low rumbling noise, a little like static, yet plainly not static, although apparently not originating within the mechanism itself. Several months had passed before this was identified as issuing from outer space . . . before it was traced to a strange new cosmic ray, of unparalleled power. Statements regarding its qualities, though well authenticated, were at first met with jeering unbelief; for, whereas it had once been held that the speed of light was the highest possible, the Z-rays were estimated to travel with a million million times the velocity of light.

"A million million times the velocity of light!" men cried incredulously. "Why, it is impossible to conceive of such speed! In one ten thousandth of a second, the Z-ray would fly to Alpha Centauri, the nearest "fixed star"—a luminary so remote that light requires three years to traverse the distance. Within a few hours, the Z-ray would penetrate beyond the furthest star visible to our telescopes!"

Even those who did not find the report unbelievable, were inclined to shrug their shoulders indifferently. "And what of it?" they exclaimed. "What difference can it make to us

how fast an invisible ray may travel?"

There was one man, however, who found that it would make a tremendous difference. "Think of the powers of propulsion contained in the Z-rays!" he cried. "The terrific driving force! Once harness them, and the universe will be as easy to explore as one's home town!"

Naturally, we laughed at this statement—as we had laughed at many another of Chalmers' wise remarks. But he, undaunted, plunged into the investigations that were to absorb him for five years, and were to lead to epoch-making results.

CHAPTER III

ONE of the peculiarities of the Z-ray—and a fact which explained why it had remained so long undiscovered—was that ordinary matter interfered with its operation, just as rubber interferes with an electric current. Under everyday conditions, it had but a feeble, greatly diminished power; and only in a vacuum could its true qualities be detected. The more rarefied the air became, however—the nearer a vessel approached to absolute emptiness—the greater the potency of the Z-ray. After a prolonged series of investigations, Dr. Chalmers announced that he had found ways of utilizing the Z-ray in a vacuum; that, in fact, it was possible to draw from it an energy millions of times more powerful than that of a lightning-bolt. "However," he added, "in order to do that, I would have to have a vacuum of limitless extent."

These words, naturally, met with derisive laughter—where was such a vacuum to be obtained? But Dr. Chalmers had an answer at hand. "Is not all outer space," he inquired,

"precisely the vacuum I refer to? Are there not endless millions of miles free from even the tiniest particle of matter?"

His scheme, as subsequently elaborated, appeared daring in the extreme, and yet not absolutely impossible. In an ordinary hydrogen-oxygen space-car (such as had been employed for years already in exploratory flights around the moon), he would launch himself to a point well above the earth's atmosphere; then, availing himself of the energy of the Z-ray, would start toward the rim of the universe at a speed rarely conceived of by the most audacious imagination.

A thousand objections will, of course, instantly occur to one. Even assuming that men could fly through space at the prodigious velocity Chalmers desired, what possibility would there be of returning? How could they guide their course with certainty? How be safe against hidden obstacles in space, such as meteors, planetary dust, etc.? How, in fact, be positive of anything except that they were throwing their lives away?

To all these questions, the inventor had an answer ready. There was no certainty of returning, he said; there was no assurance that one would not collide with some hidden obstruction—although, since stray matter was known to be scattered very sparsely, there was a reasonable hope of avoiding it. As for guiding one's course—one could steer in any direction by means of a space-rudder, such as had already proved successful on interplanetary cars. The enterprise was admittedly dangerous—but no man was compelled to indulge in it; no one was desired who valued his life more than he valued the opportunity to explore the mysteries of the universe.

As a matter of fact, only three travelers were required for the space-car, in addition to Chalmers himself; and when his plans were finally announced, there were dozens of applications. The difficulty, therefore, was one of elimination rather than of selection; and when, after weeks of deliberation, Chalmers made his decision, the three chosen ones were showered with congratulations. It was only appropriate that the first choice should be Carl Alcott, veteran pilot of the famous Mars-to-Mercury flight of the early eighties, and that the second should be that wizard of space-mechanics, Harry McMasters; but I do not know on what grounds (other than those of old companionship) Chalmers should have chosen me, Daniel Lampman, his colleague and helper at Mt. Hoary Observatory.

The flight of the space-car was scheduled to begin at dawn on the first of July, 1993, from a spur of Mt. Hoary. Despite the early hour and the remoteness of the spot, a crowd of thousands of persons—including newspaper reporters, space "fans," and curious onlookers—had gathered to witness our departure; for the event had been widely advertised during the months of preparation, and speculation was rife as to whether we should succeed, or simply disappear in space, like so many adventurous spirits before us. To tell the truth, the latter view appeared most in favor, as was attested by the betting odds of twenty to one against us; hence, as I stepped through the little door of the steel-clad, bullet-shaped car, I was not deceived by the cheers, the waving of flags, and the beating of drums, but knew that most of the spectators felt that I was stepping into my tomb.

Let me freely admit that I had

something of the same feeling myself as I surveyed the electrically lighted ten-foot cell that was to be my home for weeks to come. For a moment, I shuddered and felt my courage going; and had I not been shoved on by the impatient hand of Harry McMasters, and heard Chalmers' cheery voice, "All's ready, boys! Let's slap on the controls!" I might actually have been tempted to withdraw to the safe, solid earth.

But in a moment, my hesitancy was over. I heard the door slamming behind me; I saw it being fastened down air-tight with metal clamps; I felt the buzzing of the engines beneath me, and was aware of Alcott's sharp command, "Turn on the power, Harry!" then I was shaken by a jolt that nearly knocked me off my feet, and by another, and another, and another still, as successive explosions of the hydrogen-oxygen compound flung us upward with rapidly accelerating speed.

After a minute, when I had gained the courage to glance out through the glass slit on the floor, I saw the mountains already flattening beneath us to inconspicuous eminences, amid whose wide-rolling waves Mt. Hoary could no longer be distinguished.

CHAPTER IV

BENEATH the power of the hydrogen-oxygen fuel, we rose to a height of more than a thousand miles before Alcott thought it time to shift to the Z-batteries. Then, well clear of the earth's atmosphere, we began the really interesting part of our cruise. The engines had been arranged so that we could adjust ourselves gradually to the Z-ray, moving at a speed that increased by degrees to a figure beyond computation.

It was several hours before we had gained our full velocity; but long before that time we were outdistancing light, and were watching the orbs of the Solar System retreating beneath us almost at a rocket's pace. Our clocks (which were set with the time of Mt. Hoary) had not yet registered noon when our sun was a remote star-like orb shining amid a velvet-black immensity; and meanwhile we kept hurtling on and on with ever-increasing rapidity. A hundred times the speed of light! a thousand times; ten thousand times! and faster still, faster and faster, until we had no way of estimating the swiftness of our flight. But within twenty-four hours, it seemed to us that our rate of travel was not much below that of the Z-ray itself.

Within twenty-four hours, we had left every vestige of the familiar universe far behind. We had darted straight ahead through the vastness of the Milky Way; we had passed great suns, in multitudes and clusters beyond all count, which in many cases had shot by us like bullet-streaks; we had careered close to the skirts of nebulae, and seen planets flash along like shooting stars; then out from amid the billion suns of the Galaxy we had rushed into extra-Galactic space, amid whose vacancy, after an hour or two, we saw other galaxies widening before us with their myriads of suns. And these too we passed; and other galaxies, and others, until they seemed innumerable as the suns themselves, and we marveled at the unthinkable expanse of the universe, and at the profusion of systems and worlds.

Would it all never end? Day after day, at a speed millions of times in excess of that of light, we still kept on, apparently in a straight line; and

still there seemed to be no limit to the vastness of space. Our minds were dazzled; our senses were stunned; we could neither record nor recall one millionth part of that which we beheld; we merely watched in dazed amazement, like children thrust amid some spectacle too gigantic for their comprehension.

CHAPTER V

OUR voyage had been calculated to last for sixty days only, with a few days longer possible in case of emergency; but it was impossible for the oxygen generators to supply our lungs much beyond that time; nor would our food or water hold out. Hence, when our expedition was in its thirtieth day, Chalmers regretfully decided that it was time for an about-face.

"We've seen a great many wonders, boys," he said, with a shake of his curly-haired, still youthful-looking head, "and we've traveled a trillion times further from home than any man has thought of going before. However, as we haven't got to the end of the universe yet, I think we had better return, and come back in another car, equipped for a voyage of ninety or a hundred and twenty days."

Scowls of disapproval greeted these words. Eager as we all were for another glimpse of home and friends, we were so fascinated by the unfolding vistas of galaxies and suns that the idea of returning was obnoxious to us all.

"Just a few hours longer!" pleaded Harry McMasters, with a resolute toss of his sturdy, aggressive-looking face. "I think we can hold out that much longer, don't you, Carl?" he inquired, turning appealingly to Pilot Alcott.

Alcott stroked his month's growth of beard thoughtfully, and decided: "Yes, seems to me a few hours more would be possible. Twelve, at the most! Beyond that, I wouldn't answer for our safe return!"

"Oh, I just feel it in my bones we'll get back safely!" answered McMasters; and, by way of evidence of this fact, he whistled the snatch of a tune.

And so it was decided that we were to push onward for another twelve hours. But those few hours were to make more of a difference than any of us could have anticipated!

How many quadrillions of miles we traversed in that interval, is a question I am willing to leave to the mathematicians. All that I know is that we came to an utterly different section of the universe. Beneath us we could see the familiar type of spectacle: suns and spiral nebulae, stardust and star-clusters, constellations beyond all reckoning, which reached away to infinity. But above us and ahead of us there seemed to be nothing at all. Blackness, impenetrable and absolute! blackness, through which our lenses could discern not a gleam, not a flicker, not an indication of light!

"Boys," said Chalmers, rubbing his hands together as if in self-congratulation, "we've reached the end of the universe!"

"Yes, and I can't say it's anything worth coming so far to see!" muttered McMasters, with a wry grimace, as he pointed upward to the tar-black opaqueness.

"Time to return!" decided Alcott. "The twelve hours are up!"

And he gave a jerk to the engine-levers, in order to reverse our course and swing us back toward the earth.

For some time he bent over the

mechanism and his face was hidden from us; but when next we caught sight of him, we noticed that his countenance had gone white.

"What's the matter?" we all exclaimed, excitedly, in one voice. "Can't you make it work?"

"No, not quite!" he answered, slowly, biting his lips as he spoke; while to my mind came visions of the space-car continuing to plunge through the emptiness beyond the stars, lost forever amid an infinity of night!

"No, not quite!" repeated Alcott, with a grim pursing of his mouth. "The rudder doesn't seem to respond! I can't shift the thing more than half-way around!"

Instead of darting straight onward through the darkness, we were now traveling parallel to the outer rim of the stars and galaxies.

"Holy Christopher!" cried Alcott, at last, mopping his perspiring brow. "There's not a thing I can do to make it behave!"

The rest of us all tried in turn—but without avail. Even the wizard hand of McMasters was powerless against the strangely refractory mechanism.

Yet it was hours before we really became convinced of our plight; hours before we commenced to give way to despair. Then, when all efforts to control the machine proved finally unavailing, the spectacle below showed conclusively what was happening. Like one who, in a ship at sea, skirts the rim of a distant coast, so we were skirting the outer edge of the universe, whose stars and sun-clusters, in ever-changing panoramas, continued to shine below us at approximately the same distance. From the rapidity with which their formations altered, we knew that we were still traveling with the same incredible rapidity; yet it seemed utterly beyond

our power to shorten the distance between them and our car.

"By heaven! Do you know what it is?" exclaimed McMasters, as if making a sudden jubilant discovery. "We're circling right around the universe!"

"So we are!" cried Chalmers, slapping him enthusiastically on the shoulder. "You see, boys! You see! Doesn't that prove my theory of the curvature of space?"

"Little good that will do us!" I returned, mournfully. "No doubt we'll go circling around the curve of space forever, after perishing here in this speeding tomb!"

"Damn it! that's more than likely!" agreed Alcott, as, after a last futile jab at the controls, he sat in a corner with his face buried in his hands, moodily meditating. "It's just as if there were an invisible wall between us and the rest of the universe. We're like flies beating against a window-pane we haven't the vision to see. There's no way of getting through it, no matter how we try!"

"But if there was a way of getting here, there must be a way of getting back!" argued McMasters. And this view cheered us all temporarily, although from moment to moment our plight seemed to grow more hopeless.

One of the peculiarities of our predicament was that we could turn at ease to right or left, altering our flight at any angle so long as we did not descend; but it seemed as impossible to drop toward the star-clad cosmos as it would be for a stone to fall upward. It was as if some inscrutable, resistless power held us in check, making us literally exiles from the universe!

Yes, exiles from the universe! No words can describe the horror of that sensation of being banished amid the

outer blackness! banished without the hope of ever returning to the warmth and light! With emotions of boundless longing, of regret, of despair, we recalled the homes now so immeasurably far away, the homes we had left so eagerly; we were stricken with a nostalgia such as few men could ever have known even amid the most dismal recesses of mountain, desert or polar waste. It was not so much the thought of our own approaching death that tormented us; it was the belief that we were to die as outcasts from the very universe; that for all eternity to come, our bodies would go whirling in their sealed tomb amid emptiness and darkness.

And still our headlong flight continued; still the starry vastenesses remained at the same inaccessible distance. We had ceased even to make an effort, since all effort seemed futile; we merely lay sprawled listlessly on the floor of the car, each dismally absorbed in his own thoughts, each staring out at the surrounding vacancy.

"Well, boys," said McMasters, after our aimless circling had lasted for what seemed an interminable period, "with luck we may still last another thirty days. We can hold on a day or two even after the food gives out."

It seemed an infinite while later when I heard McMasters, in weaker, feebler tones, declaring, "With luck, boys, we may last another twenty-nine days." . . . And then, whole years of suffering later, "With luck, boys, we may last another twenty-eight days." . . . And, after that, his computations ceased.

I do not know when it was that Chalmers came to the melancholy conclusion: "Even if we could go straight back now, I'm not sure that we'd have

time to reach the earth. Mightn't get within a million light-years of sight-ing distance."

"The only thing I regret," mused Alcott, mournfully, "is that I didn't take time to make my will. There's a little girl back there in Louisiana—but—oh, well!"

He snapped off suddenly, and averted his face. In the dim shadows of the corner to which he had retreated, his shoulders seemed to be heaving.

It was just at about this time that the miracle happened. When we had finally given up hope, and were wondering whether it would not be wiser to take our own lives, rather than wait for a slow, excruciating end, our car gave a sudden downward shift, so violent as to fling us toward the ceiling in every manner of sprawled, awkward attitudes. Then, when we had painfully recovered ourselves, and had collected our scattered wits, we observed a fact so startling that we began to leap and shout and clasp one another's hands and clap one another on the shoulders, in the manner of children at some gala celebration. We had apparently passed through the invisible wall in space! We were plunging straight toward the illuminated universe of stars!

For a moment we could only accept this incredible, this unforeseen fact, too overjoyed to attempt an explanation. At first, indeed, we half expected that our new flight was to be arrested by some fresh obstacle, leaving us as helplessly caught as ever. But as we continued downward at incalculable speed, and the stars drew visibly nearer, Alcott slapped his knee, and exclaimed, in the manner of one who has solved a problem:

"By Jove! If it wasn't as I said! We must have reached a hole in space, and gone through!"

"Yes, clearly that's it!" we all agreed. But of the nature of that hole, and of the invisible barrier that had held us trapped, we could form no conception; nor are we likely ever to solve the mystery. We only know that, in some inconceivable manner, we had passed beyond the outer wall of the universe, and had come face to face with that emptiness where space itself loses all meaning.

There is little more to be told. As I write these words, we are back amid starry immensity, tens of millions of light-years from the void beyond the worlds. We are aiming our flight toward the earth, which, despite all the difficulties ahead of us, we are hopeful of reaching before our food and oxygen give out. One of our main problems now is how to discover that planet amid all the infinity of globes; but already Chalmers, peering into the far distance through our four-inch telescope, claims to have caught sight of that gigantic spiral nebula which men on earth know as the Milky Way. When we reach this agglomeration of suns, we will feel ourselves almost on the outskirts of home; and from the borders of the Galaxy it will be a matter of but a few days, at most, to locate and reach the Solar System, to descend gradually, in the manner of an ordinary space-car.

If we do reach the earth safely, I shall be content to remain there; for the horror of that outer void, that unmeaning emptiness where we were trapped, shall long come back to haunt me in nightmares; and I shall hold it sufficient to have been, but once in my lifetime, a pawn of the infinite.

In the Realm of Books

By C. A. BRANDT

STAR BEGOTTEN. By H. G. Wells. Published by the Viking Press, 18 East 48th St., New York. 217 pages. \$1.75.

After first establishing his literary ability by writing scientific romances, he turned about and wrote several straight novels dealing with human beings and their foibles as he saw them. He then started to write sociological and quasi political stuff. After that he experimented with History and Biology and correlated subjects. The Cinema then engaged his attention and he wrote several very fine scenarios of which two (Both leaning towards science fiction) were produced on the screen. Now after a neglect of about twenty years he returns to his first love, Science Fiction by writing: "Star Begotten." It is not straight Science Fiction however. In it many sociological themes are so closely connected up with Science, that the present book is really a new type. Though it is quite interesting this new "Wells" will be somewhat disappointing to those who prefer Science Fiction. As in the case of his straight novels, Mr. Wells fills the book's pages with cleverly written character sketches of a great many people, probably recognizable to the Natives of Great Britain, but practically meaningless to us. In the book, which reads somewhat like a dialogue, the reader is confronted with the Idea that some extra-terrestrial intelligences, operating from outer space, are bombarding the Earth with mysterious rays which act upon human embryos, with the object of producing either a new race of super beings or shaping them to conform to the wishes of said extra-terrestrial intelligences.

At best, the book leaves the reader very much up in the w.k. Air, nevertheless the book is quite interesting.

A thrilling adventure Story:

THE WHITE BRIGAND. By Edison Marshall. Published by H. C. Kinsey & Co., 105 West 40th St., New York. 280 pages. \$2.00.

Mr. Marshall apparently is at home in all of the out of the way corners of this globe. In the White Brigand he takes us all the way to Western China, to the distant province of Chwanben. In this remote hinterland there was said to be a fabulously rich jade mine, the exact location of which had been

lost. It was accidentally re-discovered by a travelling missionary, Harte, and a crudely drawn map was left by him as a doubtful heritage to his daughter June. She and her uncle Dr. Harper, a famous geologist, land in China with a view of making a deal with the Chinese Government, should they be able to re-locate the lost mine. But Prince Kiang, war lord of Chwanben also wants and needs the mine very badly, since he wishes to get into the good graces of the Government. Somehow he knows of the intentions of Dr. Harper and he dispatches his son "Lee", who kidnaps Dr. Harper and party, and removes them by car and later by plane to his father's palace. Lee who is only the adopted son of Kiang, is in reality the son of an American Missionary, who was murdered when Lee was a youngster. As the tale unfolds, adventure follows adventure in a breath-taking procession, but everything winds up in a thoroughly satisfactory manner. The Mine is re-discovered—June gets her share and also Lee, who politely but firmly declines to marry his Chinese Bride—so what more do you want? It's good reading.

Here is something for Burroughs Fans:

BACK TO THE STONE AGE. By Edgar Rice Burroughs. Published by Edgar Rice Burroughs Inc., Tarzana, California. 318 pages. \$2.00.

The scene of this yarn is Pellucidar, the country located inside the Earth, which can be reached by the North Polar opening. In one of the preceding Pellucidar yarns, Lieutenant von Horst was left stranded there, and this book describes the adventures of von Horst in that savage world. Here the fan will find plenty of primitive men and prehistoric beasts and reptiles and after thousands of narrow escapes he finally finds his mate—an attractive cave girl, whom he loves so deeply that he decides to remain forever in Pellucidar.

The many Tarzan Fans will be severely disappointed, since Tarzan does not take active part in this book. He's at present busy in Africa with the Elephant men, so don't despair you Tarzan Fans, you'll soon meet him again. However it may give you a certain amount of consolation and even joy to learn, that a great many New Yorkers

are becoming more and more "Tarzan minded," which is coming about like this: "As you probably know the street cars in New York are being replaced by busses. These busses are apparently designed by an Anti Fresh Air Fiend, being totally devoid of any ventilating system whatever. They are operated on the "stop-with-a-jar" and "start-with-40 miles-from-standing" principle, and if any of the unhappy passengers wish to get out they must do a "Tarzan", that is they must swing from one metal handhold to the next, until they reach the uprights flanking the exits with a final desperate lunge. Tarzan I imagine does his swinging more gracefully.

Tarzan and Burroughs Fans will enjoy this book.

A good Witchcraft and Black Magic Mystery:

DEATH'S MANIKINS. By Max Afford. Published by D. Appleton-Century Co., 35 West 32nd St., New York. 292 pages. \$2.00.

This is a story of a lost will. The house of Cornelius Rochester, a student of Demonology and Black Magic is the occupant of the scene where the weird happenings and the murders take place. A clever amateur sleuth, who is on friendly terms with Scotland Yard arrives after the first murder has been committed, and starts an investigation. He is powerless, however, to prevent the next two murders. The only tangible clues to the crimes are small life-like dolls or mannikins, which the next victim suddenly finds in his possession shortly before his untimely demise. Blackburn does some clever thinking and deducing—discovers the motive for the various murders and finally solves the mystery.

A well-plotted and well-constructed book. It should please every mystery addict.

A very unusual book from England:

EVEN A WORM. By J. S. Bradford. Published by Arthur Baker Ltd., 21 Garrick St., Covent Garden, London. 220 pages. Sh. 5/6.

The idea underlying this book is exceedingly interesting: A revolt of all the animals against man.

What would happen to humanity should the animal kingdom become united and declare war on us? The book pictures all animated beings—birds—insects—fishes—mammals—reptiles united by a supreme intellect against their common enemy their age-long oppressor—Man. The story is told in the

form of episodes, and the first one pictures attacks by venomous snakes and plague infected rats. In one of the following episodes we see the disastrous results of the united efforts of countless ordinary slugs, worms and grasshoppers, which by covering the rails several feet deep, derail one of England's crack trains, with great loss of life. We see a wily old trout deliberately murdering a fisherman. We witness the dire effects of a concerted attack of organized bees, wasps, field mice, etc. We observe the destruction of a dam by burrowing rabbits. A hunter is murdered by wild geese and other queer happenings. Some of the episodes are quite humorous as for instance, when the racehorses refuse to race, when the foxes chase the hunter, but in toto, the book is sinister in tone.

In my opinion the book preaches the moral: "Be kind to the lesser children"

I enjoyed it immensely.

An old theme used once more with good effect:

THE SPACE RAIDERS. By Barrington Beverley. Published by Philip Alan & Co., Ltd. Quality House. 691 Great Russell St., London W.C.1. 245 pages. Sh 2/6.

The idea of beings from another planet attacking the Earth has become hoary with age. It has been used innumerable times with good, bad and indifferent results. This is one of the good ones.

The world is panic-stricken. An enormous Space ship has approached the Earth and continues to discharge poisonous gasses etc. all apparently with the purpose of finding out whether this globe would be worth taking over. The Space Ship, which moves at incredible speed, is impervious to any earthly weapon. Resistance seems hopeless, but a clever Scientist discovers ways and means to drive the invaders off, and the world is saved once more.

Worth while reading.

And by the same Author and Publisher:

THE AIR DEVIL.

which has as its theme the w.k. mad scientist (Aviation variety), who develops a violent hatred for all airplanes, because his wife and child were killed in a crash. He very cleverly wrecks several planes, almost succeeds in destroying his own company, the Avalon Air Line, but he is killed while trying to escape detection.

Fairly good light reading.

DISCUSSIONS

In this department we shall discuss every month topics of interest to readers. The editors invite correspondence on all subjects directly or indirectly related to the stories appearing in this magazine.

A Letter of Well-Thought-out Encouragement. This Class of Communication Helps More Than Scolding Does.

Dear MR. SLOANE:

For the last two or three years I've practically prided myself on being one of the few active science fiction fans *never* to write a letter to any professional magazine. But the arrival of the October, 1937 issue of **AMAZING STORIES** prompts me to write a comment of something or other lest you think that your silent legion of readers take little interest in the magazine outside of the pleasure they obtain from reading the contents. As you may have noted among science fiction fans they will transfer their loyalties to one particular publication and keep it there, though they may occasionally begrudge another magazine well earned praise. Well! I fear that I am no better than the rest of them for in my own circle in a very small way I am notorious for being an enthusiastic **AMAZING STORIES** booster. Despite all elaborate surveys by various two-faced fans I still insist that science-fiction future well-being lies in the hands of **AMAZING STORIES** and not as might be supposed in the hands of tremendous organizations who utilize this branch of literature, as just another means of raking in profits. It is by the hands of unscrupulous corporations, such as this, that science fiction is dragged through the mud to emerge in juvenile, spicy or cartoon form. Movies and Cartoons far from advancing science fiction just tend to drag it down to the level of the usual stereotyped trash. I believe you commented something like that in a back issue yourself.

To get away from sometime unpleasant angles let's turn to something infinitely more interesting. You've guessed it—**AMAZING STORIES**. May I call your attention to a small error on the October cover. The title of H.F. Arnold's story on the cover is "Before Atlantis Was." In the magazine it is "When Atlantis Was." Nothing exactly important unless you consider a slight amount of confusion it may cause. As for the author himself, I'm well pleased to see his work in **AMAZING STORIES**. Readers of science fiction will remember him as author of that short, classical story some time back "The Night Wire."

If the present novel can hold the readers' interest as well as that little short did, you've really got something worth while there.

At the time of this writing I've just completed Keller's latest. Superb is the only word to describe it. So far it is the best story in any science fiction magazine this year. Going back a few issues I'd just like to mention that your best have been "Shifting Seas" by Weinbaum (what an ending), "The Last Neanderthal Man" by Nathanson. "Prometheus" (again what an ending) by Barnes, not to mention Binder's, Lemkin's and Tooker's excellent pieces. It seems peculiar to me when I note that certain months of the year, usually April, August, October, and December, **AMAZING STORIES** is exceptionally good. While in other months, lately in February and June "the standard of quality seems to slump, even though there are sometimes better than average stories in these numbers. Just coincidence I imagine. The last few Dr. Jameson stories though apparently just as good as the first ones are being read by me with waning interest. I would suggest that Neil R. Jones bring an end to his most popular stories before their present popularity takes a turn, just as did that of a number of writers of more or less interesting series in another magazine. Don't get me wrong I still like Dr. Jameson and to an extent still enjoy his voyages, but I wouldn't like to reach the stage where I'd comment "Another one of those things."

I can add nothing to what has already been said about Morey except that he is just about the most inconsistent artist whose works I've ever seen. Marvelous one issue. Awful the next. You figure him out, I can't.

Perhaps the readers don't realize it but the following stories printed last year are more or less among the best stories of this nature ever penned.

His Majesty the Queen by W. K. Sonnetman (have you any others by him)? His quality is comparable to Weinbaum's.

He Who Shrank by Henry Hasse (author had trouble ending the story however).

Subconscious by John Russel Fearn.

Mr. Dimmit Seeks Redress by Miles J. Bruer, M.D. (superb).

Devolution by Edmund Hamilton (stupendous).

Possibly you might include Campbell's "Uncertainty" but that story was ruined by too much science. There's a limit to everything. Lemkin, Wede, Bartel, Keith, Jones, Nathanson and Endersby also penned stories of above average merit but they lacked "it." I'm still trying to figure out just how to classify Henry Kostkos' unusual story "We of the Sun." Is it an exceptional story or a fairy tale? Whatever it may be I enjoyed it and I am at a loss, because of its unusual nature, whether to class it with the above list of merit.

Though comparisons are odious I doubt if any other science fiction magazine can turn out "super special" stories at the rate AMAZING STORIES does. I personally consider AMAZING STORIES the last outpost of real science fiction, and am hoping fervently for better days.

SAM MOSKOWITZ,
503 South 11th St.,
Newark, N.J.

(You certainly realize that an Editor, trying to please the many, all kinds and conditions of men, needs a little encouragement for his efforts to satisfy the many readers of the periodical he has in charge. The best stories by the best authors are remorselessly abused by some, and admired by others. All we can do is to give good matter in our pages, and, if some object to it, others, like yourself, will write a well-thought-out letter of commendation. You will accept our thanks for your words of appreciation, and we shall hope for more letters from you. Do not hesitate to scold us.—EDITOR.)

A Letter Which We Enjoyed Although It Was Written in Faint Pencil.

Editor, AMAZING STORIES:

I have never written to a magazine of any sort before. I have read AMAZING STORIES of several years, and have always read the slams and compliments you get. Personally I think your stories are interesting and entertaining. As is to be expected in anything you have highs and lows in your different stories. In the present issue I like the story "Before Atlantis Was". I am waiting for the conclusion next issue with all the excitement of a child going to the circus. Now for a slam. Naturally in all your stories the plot is quite impossible under conditions of the present day and age. The thing that is most improbable of all is this. In a lot of stories a man has found something with which he can rule the world and the hero always catches him and destroys whatever it may be. You know yourself there are very very few people in the world, if there are any at all, that having disposed of the villain and having control of something, who would

rule the world, would destroy it. You and I, if having the world, would take advantage of it. I doubt if you publish this, but, as Leslie Crouch did, I "dare" you to do so. I am sure you will receive many letters agreeing with me. I would like to receive letters from all parts of the country. I am able to talk intelligently on most subjects.

BOB DAVIS, JR.,
Linden Hotel,
Indianapolis, Ind.

(You should always write in ink or use the typewriter. Pencil writing is not very acceptable. In writing to us do not hesitate to give us slams. They add spice to such communications. We are well used to them. Seriously speaking we enjoyed your letter. Write again.—EDITOR.)

We Are Sorry to Say that the Overlooking of the Lapsus Calami Was the Editor's Fault.

Editor, AMAZING STORIES:

As an ardent and generally not too critical reader of your excellent magazine I feel that I must however gently cross foils, with buttons on, of course, with Dr. William Lemkin Ph.D. in respect of his story "Cupid of the Laboratory," Aug. 1937, "Burt" is asked what the voltage is and he replies twenty-two milliamperes. This reply is of course both unprobable and impossible; further in the text Copper Sulphate is referred to as CuSO. This of course should be CuSO₄. I am not suggesting by any means that these errors detract from the story but they may cause considerable enquiry in the minds of your younger readers who may be taking a physics and chemistry course.

In conclusion I should like to say how much I enjoy the magazine but may I suggest you confine all stories to those of an ultra scientific nature.

C. M. NICHOLSON A.M. Inst. Mech. E.
A.M. Inst. E.E. of Inst. P.
Mayfield,
Station Road,
N. Ferrilij,
E. Yorks,
England

(The omission of the subscript '4' from the formula of copper sulphate may be assigned to oversight in the editing and proof-reading. Using the wrong unit for potential or writing voltage for amperage, whatever way you take it, is an oversight. We all have our troubles in revising typescripts. We wish to thank you for your kind and appreciative letter. It is representative of the sort of letters we receive from your country, they are always appreciative and friendly.—EDITOR.)

A Highly Appreciative Letter, Which Is Certainly Very Pleasant to Receive. We Want Our Readers to Like Us.

Editor, AMAZING STORIES:

I have been reading the *AMAZING STORIES* for a number of years and think it is a great magazine. I finally decided to write you and give my views about it. I think that the stories about the adventures of Professor Jameson by Neil H. Jones are swell. I think you should publish them more often. "The Last Ice" by George H. Scheer was a great story. I suggest that you ask him to write a sequel to it if he hasn't already done so. "Martian Mail" was a swell story as was also "The Never-dying Light."

Your "Science Questionnaire" is a swell feature. I always look at it first and try to answer the questions. After I have read the stories I go back to the "Questionnaire" and try to answer the rest of the questions and see how much I have learned.

By the way, why did you change to a bi-monthly? You were all right as you were and now I have to wait twice as long for it.

LLOYD G. NELLY,
East St. John,
N.B., Canada.

(You speak in praise of our magazine in such terms that the scolding letters we receive are perhaps a healthful tonic after your kind letter. The change from a monthly to a bi-monthly was a matter of business only. The future we hope will bring back the monthly issues again.—EDITOR.)

This Letter Is More Than Welcome. We Shall Hope For More From the Same Writer. Our Discussions Are An Open Court for Praise and Reproof.

Editor, AMAZING STORIES:

Welcome another reader to the fold! For some reason (unaccountable!) I have never thought enough of A.S. to buy it, up to now. However, not long ago, I decided to "splurge," and purchase the February issue, just to "see for myself." Now, I wish I had thought of it many years ago! My prejudice against you is "Gone with the Wind."

Now for the February issue: (I'll say one thing—all your writers have good literary ability! "By Jove!" is excellent (so far) as literature and as a science-fiction story. However, is it all to be just about a race of cultured insects? "The Planet of Perpetual Night"—a masterpiece! One little error, though—if the dark planet's atmosphere absorbed all electromagnetic waves, how could the (electromagnetic) light of the disintegrator beam be visible on the surface of the planet? "Prometheus"—good. But, remember—flying fish don't fly, they jump out of

the water and glide over the surface before they dive again. Their "wings" are oversized fins, as are those of the huge fish pictured. Fish are almost as "dense" as water (like us) and they would require huge wings to carry the weight (when flying) of the fish described. "Denitro"—good as far as it went. It's just the statement of a possibility—should have been developed—sequel, please? Coblenz is slipping. "The Last Neanderthal Man"—this isn't stf. by any stretch of the imagination!

So, four of the stories were very good, but for small "technical" errors which can, in fact, be overlooked. As you say, comparisons are odious and, although I have "looked at all three" supposedly stf. magazines, I will attempt to make none. Suffice it to say that your publication is excellent all around and that you have gained me as a customer.

CAMERON D. LEWIS,
268 Shepard Avenue,
Kenmore, New York.

(It never occurred to the Editor of this Magazine that anyone supposed that the misnamed flying fish really flies. Its flight through the air for a short distance is strictly gliding. There is probably no vacuum-lift exercised by the upper surface of the pectoral fins. You speak of one of our authors "slipping." All of us are liable to that trouble. We hope to get more stories from the author you refer to as "slipping." The depiction of the lives of the primitive man can be based on little more than imagination and surmise. And how much of what we call science is based on little more.—EDITOR.)

Criticism of the October Issue of AMAZING STORIES.

Editor, AMAZING STORIES:

Congratulations for the best issue of *AMAZING STORIES* in a long time. The October issue was really good. Perhaps if we have a few more issues like that, your circulation will rise and you will go monthly.

To start off with, the cover was quite good, but it reminded me of Morey's cover for *Flying Aces*. It just wasn't a science-fiction cover. Next time, give us a cover which is really "amazing."

The conclusion of the serial by Doctor Keller was only fair. I had expected better of him, so I was disappointed.

Was I pleased to see another of the Professor Jameson stories I consider them as the cream of the crop, and they are always good. Neil R. Jones will always be one of my favorite authors as long as he keeps writing about the Zoromes and their adventures.

"The Last Ice" was good, but I have some-

thing to say about Morey's illustration for this story. In the story, it specifically stated that the boy and the girl did not have any hair, yet Apho had hair in the drawing and so did Ogh. Why could not Morey stick to facts?

As I never read a serial until I have all the parts, I can not comment on the new serial "When Atlantis Was." I know one thing, it had better be unlike the usual run of Atlantis stories, or there will be a war.

With this issue, AMAZING STORIES takes first place among the big three. One of the main reasons for this is the long stories which you publish. I would rather have 3 long stories than 7 or 8 short stories.

Are you ever going monthly? With that question, I end my letter.

LOUIS KUSLAN,
170 Washington Avenue
West Haven, Connecticut

(We thank you for assigning to us first place among what you call "the big three." Neil R. Jones has made a great success with the "Jameson" stories. All our readers seem to like them. You will find that the story "When Atlantis Was" will have an ending of its own, not at all a usual one about the fabulous island. We cannot say anything about going monthly—EDITOR.)

Back Numbers of AMAZING STORIES For Sale As Well As of Some Other Magazines. A Wish For a Return to the Large Size of the Magazine.

Editor, AMAZING STORIES:

Having been a reader of AMAZING STORIES for many years, I have collected quite a few copies of your excellent publication, which I am forced to dispose of due to lack of storage space. Having seen quite a few requests for back copies in the Discussions columns, I thought perhaps some of your readers might be interested in buying some of my copies. The magazines are for the most part in good or excellent condition, and I am willing to sell them at half the original price, except for a few of the earlier copies. The list runs from early 1927 to 1936. I also have some other scientific magazines from 1929 to date. Anyone interested will receive a prompt answer from the undersigned.

Although you have had the small sized magazine for several years now, I am still an ardent supporter of the old large sized issues and would certainly like to see them back on the stands again, but I suppose they are gone for good. The stories are as good as ever, especially those relating to future chemical and physical sciences. David H. Keller gave us something really good when

he wrote "The Fireless Age" but stories of the type of "Death in the Stratosphere" are a little too fantastic.

C. J. SWEET,
2832 Pine St.,
San Francisco, Calif.

(So many letters reach us in which the writers ask for back numbers that we are sure you will get answers to this letter. If you will run over our recent issues you will find many letters offering back numbers for sale. A great many readers have written their appreciation of the reduction in size of AMAZING STORIES. We appreciate your pleasant letter.—EDITOR.)

A Letter From One Who Seems to Like Us in Spite of Our Many Short-comings.

Editor, AMAZING STORIES:

I am a member of the Science Fiction Association and am writing in response to your request for the results of letters published in your Discussions columns. Please accept my deepest thanks for printing my letter in the April '37 issue. Although I'm certain that you published it on account of its being my first, and not on its poor merit, it has opened up many avenues of stf. which I never knew existed.

First four persons U.S.A. saw my letter and wrote to me from Iowa, Texas, New Jersey, and Washington. I should like to say that I have replied to all of them and will they please keep on writing, as some of them have, especially the young lady cowpuncher from Texas!

I am no longer alone as I said in my previous letter, for I have been put in touch with other London members of the above association, and we are busy arranging meetings. Besides which I correspond weekly with several Britishers, whom I had never heard of before, and would not have heard from them had you not printed that letter. In all I have received letters from about eight correspondents; it may not sound much, but to me it means a lot because I am able to discuss science fiction with all sorts of people, whereas formerly I vented my spleen on the Editors, and when you are getting letters almost continuously from half a dozen people, it is quite hard work, but still it's good fun. About the Magazine. It grieves me sorely to say so, Ed., but the dear old Magazine is getting worse and worse and even more worse. A few months ago you were hitting the high spots with stories like "Luvium under the Sand," "Uncertainty" (Campbell's always good for a top-notch) "Devolution," "Death Creeps the Moon," "Council of Drones," "Human Pets of Mars," "He who Shrank," "Intelligence Undying," "Modern Comedy of Sci-

ence," "Lurking Death," "We of the Sun," "When the Top Wobbled," "Fall of Mercury," "Draught of Immortality," "Another Dimension," "Chemistry Murder Case," "World Gone Mad," "Shifting Seas," "Chemical Murder." But you have been steadily getting wusser and wusser, and lo and behold! When I rip the wrapper off the October '37 issue I find but two stories for my 25 cents, and I tell the world they are lousy.

"The Last Ice" is neither original nor scientifically accurate. Scheer has got his evolution all wrong. He says that the heavy atmosphere will cause the Earth peoples' chests to decrease in size, and hair will grow again because of the closer and hotter sun, which is all wrong because evolution never reverses itself: and anyway, has Mr. Scheer ever thought that to place a man used to breathing extremely rarefied air in the dense air of Venus is the same, relatively, as dropping an animal into water; they will both drown.

I used to like Neil R. Jones' "Zorome" stories but the lack of conversation and character interest, coupled with the too fantastic shapes of the creatures he invents bore me to distraction. Its about time he killed the Professor and brought something more interesting to life . . . Still I remain ever hopeful for a return to the stature of '32, '33, '34, when you were at your peak, and I will close wishing for a monthly, and thanking you again for all those letters I received, although I never asked for them.

ERIC C. HOPKINS,
2c Stirling Road,
London, E. 13 England.

(We have taken the liberty of omitting some of the more severe and even personal parts of your letter. The Magazine pleases many people, and of course we would like to please you, but apparently this may not be. Among our authors are English writers, Anglo-Africans (I hope we have got that right) and New Zealanders, and of course Americans in the majority. From reports that we receive we find that there is a good response to letters in Discussions, in which the writers ask for "pen-pals," as they are apt to entitle them. In writing for publication, you should write on one side of the paper only, not on both sides as you have done. --EDITOR.)

A Letter That Goes Straight to the Heart of an Editor Who Is Vainly Trying to Please Everyone of His Readers.

Editor, AMAZING STORIES:

I do not consider AMAZING STORIES the best scientifiction periodical out; neither is it my favorite, but at least you come second all round. Still there are some things

you have which no other Science Fiction magazine has, Editorials for one—covers another. The editorials are always expertly done; it's fine to have a Doctor of Philosophy for Editor; we know we'll get good work always. I won't say anything about your faults; you know them and are doing your best to correct them. I realize that if you could possibly be a monthly again, you would. As it is I just patiently wait and admire your upholding of the old standards, even in these discouraging bi-monthly days. Some readers I notice in Discussions criticize you, your work, the magazine—everything. I like to read a blistering answer to these bores. By the way, that was some clever sarcasm you used in answer to R. W. Parr's letter. Congratulations . . . I have been reading science fiction for years and years; AMAZING STORIES for over a year and a half. I like best stories of the Posi and Nega type, and the Professor Jameson style.

Most of the stories are fine although occasional ones like "Hoffman's Widow" annoy me. Keep on doing your best, Dr. Sloane and AMAZING STORIES will soon reach its peak again. Never mind some cranks that write in to tell you how to run the Magazine; remember that it's the "Aristocrat of Science Fiction" to most of us, and I hope you will keep that title. You've an indefinable something that others cannot imitate, moreover you've less science mistakes than any other Science Fiction magazine. That is an honor to the editorship of "A.S." I seldom wrote in the past to any Science Fiction Magazine, but the time has come to break this silence. You'll hear from me again some time in the future. "AMAZING STORIES" is definitely on the rise again; if the readers are patient they will soon see hopes realized. It takes time but the rise will then be more appreciated by your readers who can appreciate—most of them can. AMAZING will always have an honored place in my heart, Dr. Sloane, and you also. Here's to the future.

I almost forgot. The return to the "Comet Tail" cover was most welcome. There's another distinctive feature that is without imitation,

ROBERT SHERWOOD,
208 Pearsall Avenue
Jersey City, N.J.

(We thank you for your appreciative letter, perhaps better than we deserve. We had to abbreviate a little, but your expressions of appreciation for the efforts of our staff are most acceptable. Write again soon.—EDITOR.)

A Mathematician From the "Lone Star State" Indulges in Mathematics Inspired Thereto By One of Our Authors.

Editor, AMAZING STORIES:

Am very much interested in "On the Planet Fragment," appearing in your October number. Actual computation of the gravity upon such a fragment, of the same density as the earth, has given me the following answers: 1.195W in the center of a $23,000 \times 14,000$ mile face, 1.288W in the center of a $23,000 \times 4,000$ mile face and 0.1.266W in the center of a $14,000 \times 4,000$ mile face, "W" being the weight of the body on earth.

I looked very hard, indeed, for your author's "Land of Exhaustion," and finally I found it . . . It was in my own mind and body after I had looked up all the logarithms and inverse trigonometric functions necessary, to solve the problem of gravity on the "Planet Fragment." The answer contains a two story logarithm a mile long and a two story anti-tangent a half mile long. And was I one more exhausted man after I got through!

If any of our readers would like to see my solution to the problem, I should be only too glad to send it to him. Meanwhile, let me thank your writer for having furnished me with some very interesting mathematical work to do. Tell him to write another Jameson yarn soon, but let it be a good one like, for instance, "The Sunless World."

Sincerely yours

FELIX B. WADEL,

Tyler, Texas

(The "Jameson" yarns, if we may use your designation have won great appreciation from our Readers. If convenient we should like to see your calculation. The two story anti-tangent must have been a wonder.—EDITOR.)

An Excellent Letter of Criticism, and Some of It Favorable As Criticism Sometimes Can Be.

Editor, AMAZING STORIES:

Belatedly, I'm sending this report on the June, 1937 issue of our magazine. For the first time in years, I am amazed by a story in *AMAZING STORIES*. The story in question is Joseph Wm. Skidmore's "Murder by Atom." It's also about the first s-f story in years that successfully combines the two essentials of this type of prose, science and fiction. For a long time now I've kept up an on-and-off reading of A.S. for reasons of sentiment only, but now I look forward to the next issue with the hope that there'll be another story with as much action, fact, and logic as "Murder by Atom." The con-

clusion of "By Jove" was also satisfactory, although the title of that story is not as attractive as it could have been. "The Crystalline Salvation," well, had its points, but as for speeds greater than that of light, uh huh, or of electricity, infra-red, or what-have-you, that's leaving out the possibility of the space-travelers being transformed into nothingness, atoms. What say you, DISCUSSERS? By the way, does anyone know the whereabouts of Milton Kaletsky? I'd like to get in touch with him.

Well, T. O'Connor, the June issue gives me hope. Perhaps in the future there will be enough renewed interest in *AMAZING STORIES*, and amazing stories in general, to warrant a return to monthly publication. Maybe in the not-too-distant future we shall have the large size. It was the large size that made the old *AMAZING* the magazine it was; only lessening of circulation (depression, etc.) reduced the former star of super-science magazines to its present uncut edged pulp form. And, hopeless plea, where is Paul? Morey is ordinary. Paul used to bring stories to life.

Let me say that your editorials are readable, valuable, and informative, Dr. Sloane—more praise I can't imagine.

Let's all try to get new readers for *AMAZING*. Then perhaps we can have a monthly with smooth edges, and better payment to authors, which will guarantee better stories. Luck to *AMAZING*.

SEYMOUR ARTHUR KAPETANSKY,

1534 Taylor Street,

Detroit, Mich.

(We very often have to assert that a letter tells its own story and needs no editorial comment. In your case all we have to say is that we shall hope to get more of your communications for our readers.—EDITOR.)

Back Numbers of AMAZING STORIES Wanted By An English Reader.

Editor, AMAZING STORIES:

I have been a reader of *AMAZING STORIES* since 1930 and have every issue from then up till now.

Will any reader having any of the following issues please communicate immediately with me. Either English or American readers can answer. They are: April to December 1926, January to July 1927 and the October 1928 issue. Please specify price desired.

L. DINGLEY,

78 Malt Mill Lane,

Blackheath,

North Birmingham, England

(We would suggest that you look over the letters in Discussions. You will find several letters from readers who have back numbers to sell.—EDITOR.)

A Comprehensive Word of Praise.

Editor, AMAZING STORIES:

I have just completed my first copy of A.S. and I enjoyed it so much I just had to write in and tell you. I don't like any particular story or any particular author; I liked the whole book. It is seldom that I get very enthusiastic about anything—especially a “mag”—but I intend to tell all of my friends about yours. Will you please enter my plea for pen-pals?

AUSTIN TABER,
5229 Wells Ave.
St. Louis, Mo., U.S.A.

(Your comprehensive letter is quite refreshing. It is very short but it tells its story in a few words. Write again.—EDITOR.)

A Very Wonderful Letter Touching on the Cosmos, of Which Our Little Earth With Its Wretched Wars and Other Troubles Is So Insignificant a Fraction.

Editor, AMAZING STORIES:

I once glanced rapidly through your magazine and cast it aside as a nightmare. Since then, I ventured to read it again. There was no particular reason for wanting to peruse it again, except to quench the fires of inquisitiveness. The October issue, carrying the scientific tale captioned “The Last Ice” by the mind of G. H. Scheer, captured my imagination and caused me to forfeit my life temporarily to the universal winds of tomorrow. Nothing short of a revelation harmonizing with space and time can successfully step into its shoes. I'm not conveying praise in order to seek a license to have these awkward and meaningless thoughts published. Emphatically not!! I'm writing to commend the Editor or whoever is responsible for making possible the publication of such an interesting magazine as AMAZING STORIES. It's really a praiseworthy collection of scientific thoughts despite its critics.

Mr. Editor, there are creatures inhabiting this planet who speak of a Universe which is “expanding,” “contracting,” “exploding,” “collapsing” or what not. I wonder if it's possible to see this in scientific fiction? You know, make some form of prodigious creature out of the whole darn system. Take the whole hundred billions of galactic systems (or whatever science calls them) and give them a central heart-beat with a super breathing power. That sounds silly doesn't it? I suppose you're laughing me to scorn because of my lack of synthetic fancification? But it's stingingly lonesome to be told that the outermost objects or nebulosities are receding at the rate of approximately five hundred billions of miles per year in any

straight line (curve?). Well, it certainly isn't my fault that I am anxious to have these dashing systems perpetually within the reach of the telescopic power of our dear, dear astronomers, instead of the horrible thought of imagining their disappearing into nowhere (somewhere?). I do grant, Mr. Editor, that the writers will be confronted with that strange and mysterious after-pull but the imagination has free rein, hence his thoughts should be able to find the rails of observation. It's up to the writer to imagine it as a pulsation instead of a spread. I'm probably barking through the tube with an endless cavity but I still feel that the echo is there. If this has already been successfully accomplished by your contributing writers of scientific fiction, how can I secure that issue?

My best wishes for your continual success. May it once be said that through AMAZING STORIES MAGAZINE a rusty key was found that yielded a clue.

MORGAN L. AMAIMO,
Northeastern University (Law),
Boston, Massachusetts.

(If we received many letters as good as this one we could cease the publication of science fiction stories, this letter is so interesting we commend it to our readers for its tone of surmise, for what do we really know about it all? The new two hundred inch telescope will tell us a little more than what we know at present, but the awe-filled dimensions of it all fairly overcome one's mentality.—EDITOR.)

Back Numbers of AMAZING STORIES For Sale
By An English Reader.

Editor, AMAZING STORIES:

I have quite a large collection of science fiction magazines of all kinds which I am desirous of selling.

Will any British readers who are interested please write to the address below for list and prices.

A. G. E. CHAPMAN,
7 Lynwood Gardens,
Waddon, Croydon, England.

Back Numbers of Science Fiction Publications For Sale.

Editor, AMAZING STORIES:

I have a rather complete collection of recent science-fiction and quite a few of the older issues, which I am anxious to sell. Readers desiring same should write to me, sending list of what they want. I think I can fill most orders. I would appreciate publication for the benefit of the readers desiring to add to their collections.

TOM JACKSON,
5155 Wornall Road
Kansas City, Missouri

"Poor Misguided Henry," as You Term Him, Will Appreciate Your Prayers. But He Is Not Misguided.

Editor, AMAZING STORIES:

After being a silent admirer for some years, I am blasted from my usual lethargy by Kostkos' story "Death in the Stratosphere." You state at the start that the author gives free range to his imagination. That is a gem of understatement. The whole thing seems to be a S.F. writer's nightmare—in fact, I defy Mr. Kostkos to submit anything the story could be based on. From henceforth, every time I view the dear old aurora borealis, I will bend on my decrepit knees and pray for the soul of poor misguided Henry.

Now that I've blown off a little steam—why is everybody arguing about poor defenseless Morey? Why, Hells bells, his illustrations are rarely topped by anyone! I should think there would be better things to discuss than the illustrations. Let him who can draw better ones cast the first stone (or something).

Thanks to your "Discussions," I am trying to get some of the "Skylark" stories from Allan B. Stern, who kindly volunteered the information that he has most of your back issues.

After reading the letter in "Discussions" from Mr. C. R. Foster of Northumberland, England, I am reminded of Barnum's famous remark. Now, Mr. Foster, if water divining is so simple, why don't you do it? Or don't you happen to be psychic? And where, in Heaven's name, did you get the idea that "Nature" is the world's leading scientific journal. And as for Major Pogson ("Ye Olde Official Diviner to the Government of Bombay") tell me, does the Gov't of Bombay still use an official Diviner—or did the esteemed Major Pogson find all the water in India?

Now, Mr. Foster, if you want to make something of it, just let me know and I'll bury you in such a deluge of proof that water will cease to interest you.

Now that my "leedle" brickbats have been "trun," here's a rose or so. As a whole, A. S. can't be beaten—or even equalled. For years you have consistently printed the best science-fiction available and I take my hat off to you. Occasionally you slip one in on us that is slightly odorous—but thank the Lord it isn't as often as it might be.

Anybody wanna argue with me?

JAMES MCCASLIN BROWN,
1122 No. Oliver Avenue,
Minneapolis, Minn.

(We sincerely wish that some one would "wanna" argue with this most entertaining

writer. His letter is fine, perhaps an indication of its fineness is that we totally disagree with him in what he says about one of our most highly appreciated authors, and we are glad to print what you write about the so-called divining rod, one of the most curious examples of long-lived credulity of mankind.—EDITOR.)

Try to Puzzle This Out—We Cannot.

Editor, AMAZING STORIES:

Different sections of thought study to bring their species of knowledge to perfection. But! They are isolated! For there is no logic foundation to link one section with another. So! How can a united front co-operate with genuine efficiency if that link is missing. One looks upon the constitutional world and what vision can they illuminate? If! he or she has a full comprehensive mind they can visualize their own order with variations of others reacting toward, for, or against. Mankind has not yet begun the battle of life, for they know not what goal to attain. I am willing to give the full proportion of my knowledge to be judged and perhaps one day the world will know.

A. G. LEACH,
45 Smyrkes Road, Old Kent Road,
London, SE 17, England.

(Our general impression is that this letter is rather obscure. We certainly do not know exactly what it is that the correspondent is getting at. One comfort is that he has sent his communication to others.—EDITOR.)

A Breezy Letter From the North-West.

Editor, AMAZING STORIES:

After having read AMAZING STORIES for over two years, I still think it gives the best stories on the market as far as I am concerned. Anyone listening to me talk could tell I was strictly for the old "Mag." In your October issue all the stories are very good. But I like "When Atlantis Was" best. After that comes "On the Planet Fragment," which is a piping hot story. It is just the kind I like . . . Let's have lots more of such stories. I go completely haywire if I miss my regular "Mag." I wish it came oftener. Well "So long" and good luck.

VERNON BASSORE,
Pine River, Minnesota.

(There is the refreshing breath of the Northwest in this short letter, which we have taken the liberty of abbreviating a little. The writer will accept our appreciation and thanks for what he writes.—EDITOR.)

Appreciation For One Author and Technical Corrections For Another From a Lieutenant in the U. S. Navy.

Editor, AMAZING STORIES:

I have long been a reader of your magazine *AMAZING STORIES* and enjoy it greatly. It seems sometimes that the quality of the stories deteriorates and then again the magazine "gets back into battery," so to speak. One author who never fails to cause me to purchase a copy of *AMAZING STORIES* is Neil R. Jones, especially when he sticks to his favorite of the machine men and their eternal explorations with the redoubtable Professor Jameson. His work is sustained and lurid, never overdone, and leaves the reader with the feeling of sharing great adventures in excellent company. He has the gift of arousing an absorbing and peculiar interest in his subject.

Another good story in your October issue was "When Atlantis Was"—except as a naval officer I would like to point out several technical faults in the story: (1) Destroyers do not refuel at 23 knots, (2) nor do they have Diesel Main engines, (3) 50 knots is about 13 knots too high as a maximum speed, and (4) the compliment of 90 men is too small, 135 would be more nearly correct (5) "NCOs" in the Navy are "petty officers" or "chief petty officers" are *not* called "NCOs" (non-commissioned officers).

Mr. Arnold would enhance his story if he checked such details more accurately.

With best wishes for the continued success of *AMAZING STORIES*.

P. R. OSBORN,
Lieutenant U.S.N.
20 Southgate Avenue,
Annapolis, Md.

(There are two things we always wish to thank our correspondents for; one is appreciation of our efforts and of our authors' stories; the other is correction of errors. But to be honest we wish there were no errors calling for such amendment. We thank you for your work and venture to thank you on our author's behalf.—EDITOR.)

A Letter of Half-commendation From the Pacific Coast. But the Half Is Very Acceptable.

Editor, AMAZING STORIES:

I hope you don't mind a little more "bombs" and roses. WOW! What happened? Before your August and October issues I didn't care whether your mag came in once a month, bi-monthly, or what have you, but "Cupid of the Laboratory" was swell, but that issue was fair; most of the others were terrible, and most of my friends who read *AMAZING STORIES* thought it was going

to the dogs, I have just finished *AMAZING STORIES* and what an issue, WOW! It's marvelous, swell, superb, etc. I want to congratulate you, Mr. T. O'Connor Sloane Ph. D. in the way you handle the answers to the various letters you get, you have tact and diplomacy. I don't usually care for your covers, but the October issue was swell. Somewhere in "Before Atlantis Was" there is something like this. There is something about a dreadnaught at night, suggestive of unleashed power, or something like that; well, the cover perfectly gives you the feeling of the words—some artist, Morey.

JACK RIGGS,
2675 Sacramento St.
San Francisco, Cal.

(Thanks for your appreciation of our efforts in which our correspondents play so important a part. We omit the name of the magazine you refer to in accordance with our custom of naming no names. We thank you for your kind letter.—EDITOR.)

Some Criticism From a Correspondent Who Really Likes Us in Spite of Our Many Transgressions. (But Are They Many?)

Editor, AMAZING STORIES:

The latest issue (October), which I just finished, was the first issue I've read in quite a while. That is about eight months. I guess I "sorta" got out of the habit (God forbid). However, to the point—I'm afraid that I was somewhat disappointed. In several ways in fact. First off I get sunk pretty deeply in "When Atlantis Was" and I'm very interested when—Poof, it's continued. Well—that's not so bad but what do I find out but that the magazine is only published bi-monthly. Oh well to get on, to get it over with, I'm doubtful as to whether that story "The Fireless Age" belonged in *AMAZING STORIES*. Don't you think it is the same type of story one finds printed in many cheap fiction magazines? (Lousey Adventure Stories)

Regardless, I have,—did—and probably will—chase all over town (if necessary) to get the next issue. I like science fiction extremely well (as you might gather).

I suppose you realize that you have competition. If the magazine is to be published only bi-monthly hadn't it ought to be a wee bit larger? hum—?

JOHN N. STEVENS,
Jacobus Avenue,
Great Notch, New Jersey

(Dr. Keller the author of "The Fireless Age" is one of our most admired authors. His stories are being translated and published in France, certainly a fine tribute. Do not give up "Our Mag."—EDITOR.)

**Junior Scientific Association. Address
Wanted**

Editor, AMAZING STORIES:

I read in your August 1932 number of the dissolving of the Boys' Scientifiction Club and the formation of "The Junior Scientific Association." The headquarters of the club at that time was—40 Lunado Way, San Francisco, Calif. Could you please let me know its present address? I thank you.

EUGENE PINSKER,
91 Columbia Street,
New York City, N. Y.

(We will be glad to have any of our readers give us the present address of this club which was founded some years ago.
—EDITOR.)

**A Very Nice Letter Which Should Have
Appeared in Our Columns Before This.**

Editor, AMAZING STORIES:

The August issue is a very good example of what AMAZING STORIES should be. A "Fireless age" by Dr. Keller emphasizes even his own work in the accurate tone with which it describes the era. This with a little editing of the sentences might deserve a place among the great literature of the world. Sustaining such a difficult mood as this without mechanism is a feat indeed. "Death in the Stratosphere" shows the touch of an expert in constructing a plot around an idea. "Daughter of Luna" fulfilled its promise of being the beginning of an interesting story. "Cupid of the Laboratory" succeeded in maintaining a tense atmosphere for a very long time—and without neglecting science either. "Antares Tryst" was perhaps too nebulous and hard to grasp—but it was well told. The sonnet "Ants" is as well done as any of those by the "best"—an orchid to the author. May I strike a jarring note in the chord of praise that the editorials have received? While I enjoy the facts that they contain, I cannot help noticing that they wander. Perhaps an outline in advance would sharpen their organization. It has been some time since I commented on illustrations. In general I think they are fairly good. And I do not believe in comparing the covers in color with the "black and white" on the pages. Any comparison would be unfair. However I would like Morey to read the stories carefully in advance. But with all and any errors the magazine still interests me. But the rough edges are doing their best to make me read one of your (nameless) competitors. In spite of all the letters voicing objections to them your editorial comments have completely ignored them. And I'll bet you don't give me an explanation either. If you improve at the rate

that the last issues have hinted, you are as good as you ever can be. Keep it

ALBERT F.

364 Beach Spring
South Olay

(We wish to give good literature magazine. Your letter is an example of what a reader can do for us. We have very fully abbreviated what you have written. We are sure we have not affected its value. We take your scoldings and very much are, and feel only too acutely that we could please you more. So as to stick to your old friend in spite of its short-comings.—EDITOR.)

**A true Appreciation, it is nicer
Scolding**

Editor, AMAZING STORIES:

Alas! Alas! Where are the old adventures, some space and time travel stories of old. Tales like "Invaders from the In", "Skylark", "Spacehounds of I. P. C.", "Ror Out of Space", "The Time Stream", scores of others. Most of the authors seem to write fantastic and weird tales, highly improbable monstrosities. "Death in the Stratosphere," or of the visible world as in "Beyond the Stratosphere".

The reason I say impossible works cause no such enveloping sheet or could exist as was in "Beyond the Stratosphere." You remember that the sheet's peculiar property of being able to travel in light in only one direction, namely without to within. Therefore, no reflections or emanations from the earth could be detected from outside our atmosphere; they would be stopped by the one-way sheet.

There is scientific evidence, however, that reflections from the earth are transmitted outside the atmosphere. I speak of the known (?) "earthshine." Moonlight, particularly bright moon is often reflected from the earth back to the moon, and is reflected back to earth again. This admits the unlit portions of the lunar sphere to be seen faintly.

Another thing I have missed very much is J. W. Skidmore's series of Posi and romances.

WILBUR J. WIDM

679 Park Av
West New York, New

(We are glad to hear that you enjoyed Skidmore's stories of the Posi. They were positive and negative, and the first syllables gave the names of the Posi. You will soon hear from Posi again.—EDITOR.)

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center of resonance. (You can also tune by
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feeling. Glorious, crystal-clear concert realism
foreign reception are now realities. Super
BB advanced features enable you to bring in
foreign stations like "local"!... Now delight in
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ANNOUNCEMENT of New Coffee Agency Openings

EARNINGS UP TO \$60.00 IN A WEEK

Over 350 more men and women are needed at once to open up fine-paying Coffee Agencies right in their own home localities. If you are looking for a bona fide chance to make as high as \$60.00 in a week, starting at once, this company will send you everything you need, give you all the help you require, and back you up with its proven successful plans. You risk no money. A chance to be independent, work as you please, and make more than just a modest living. If you want to know whether there is an opening for you in your own or nearby locality, mail the Application below. By return mail you will be notified whether we have an opening for you, and if we have, you will receive full information about this Coffee Agency Plan. You don't send a penny—just mail the Application. No obligation—you decide after you read the plan. Don't delay. Send your Application at once.

ALBERT MILLS—4937 Monmouth Ave., Cincinnati, Ohio

**OPEN
TO
MEN
AND
WOMEN**

Clip Out and Mail Today!!

**Plan Sent
FREE**

No Obligation

**FORD SEDANS
or \$500 CASH
GIVEN
as a Bonus!**



COFFEE AGENCY APPLICATION

① Write Your Full Name and Address Here

Name (State whether Mr., Mrs., or Miss)

Address

City and State

② How Much Time Can You Devote to Coffee Agency?

Mark with an "X"
☐ FULL TIME
☐ PART TIME

Full time pays up to \$35 to \$60 in a week. Part time, either during the day or evenings, pays up to \$22.50 in a week.

③ State Which Bonus You Prefer—Cash or Ford Automobile

In addition to their cash earnings, we offer our producers a cash bonus of \$500.00 or a brand-new, latest model Ford Tudor Sedan. State which you would prefer if you decide to accept our offer. Mark "X" before your choice.

☐ \$500 CASH BONUS
☐ LATEST MODEL FORD TUDOR SEDAN

④ Can You Start at Once?

Mark with an "X"
☐ YES ☐ NO

If you cannot start at once, state about when you will be able to start.

SEND NO MONEY

There is no money fee of any kind required with this Application. It merely tells us that you would consider running a Coffee Agency in your locality if we have an opening for you. You will be notified by return mail whether your home locality is available. Then you can decide if the money-making possibilities look good to you. No obligation on your part. Those who apply first will be given preference, so be sure to mail your Application without delay—NOW! No letter is required, just the Application. Mail at once to

All Applications
Will Be Held
Strictly
Confidential

ALBERT MILLS, President
4937 Monmouth Ave. Cincinnati, Ohio

Another scan
by
cape1736

